BUTANE-PROPANE News

25¢

When Janie comes

When she comes back to that ruffled apron, she'll be eager to settle down to some real home-cooking again. And when she does, we'll be ready too . . . with a Grand gas range that will represent a new conception of cooking convenience and efficiency. Right now we're working full speed making implements of war. But in the meantime, far-seeing minds in our laboratory are doing intensive after-hours concentrating. The product of today's research will be translated into miracles of production . . . when we can again turn our energies to making implements of peace.

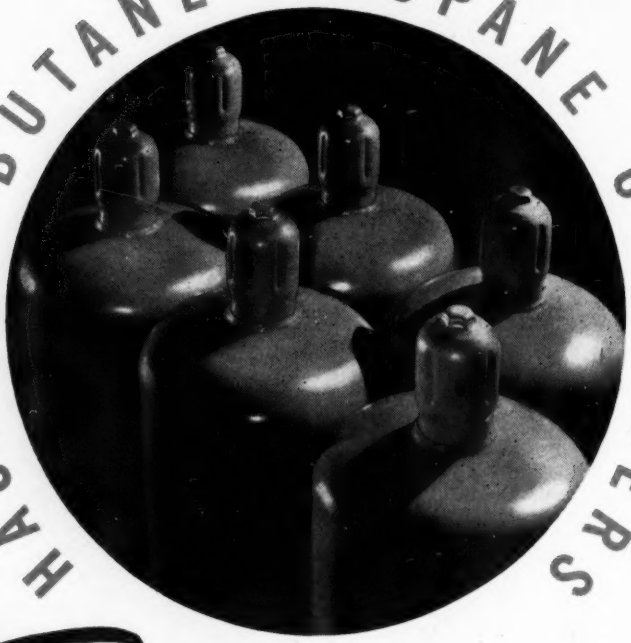
When Peace Comes,
It Will Be GRAND

Grand Gas Ranges

DIVISION OF THE CLEVELAND COOPERATIVE STOVE COMPANY
CLEVELAND, OHIO

DECEMBER 1942

HACKNEY BUTANE-PROPANE CYLINDERS



Balanced...

Perfectly balanced between adequate strength and light weight . . . Hackney cylinders assure maximum protection — easier and faster handling—and low-cost transportation.

In designing and constructing Hackney cylinders, seam area is reduced to a minimum. There is only a single circumferential body weld. Welding is X-ray controlled. Uniform side wall thickness is assured by the special Hackney cold-drawing process which also acts as a check on the quality of the steel itself. After complete fabrication Hackney cylinders are heat-treated which further improves their physical properties. Long-life is assured.

Among hundreds of L-P Gas producers, Hackney cylinders have enjoyed a widespread preference for years. Hackney engineers are familiar with all types of metals, and possess a complete understanding of users requirements. Completely modern Hackney facilities and manufacturing equipment helps them meet those requirements exactly. However, today metals for other than direct war uses are more difficult to obtain, but there is no interruption in skill, knowledge, imagination, and Hackney's research in product improvement. These are continuing. You are assured that the qualities which have won a preference in the industry will continue to be found in Hackney cylinders.

Hackney MILWAUKEE

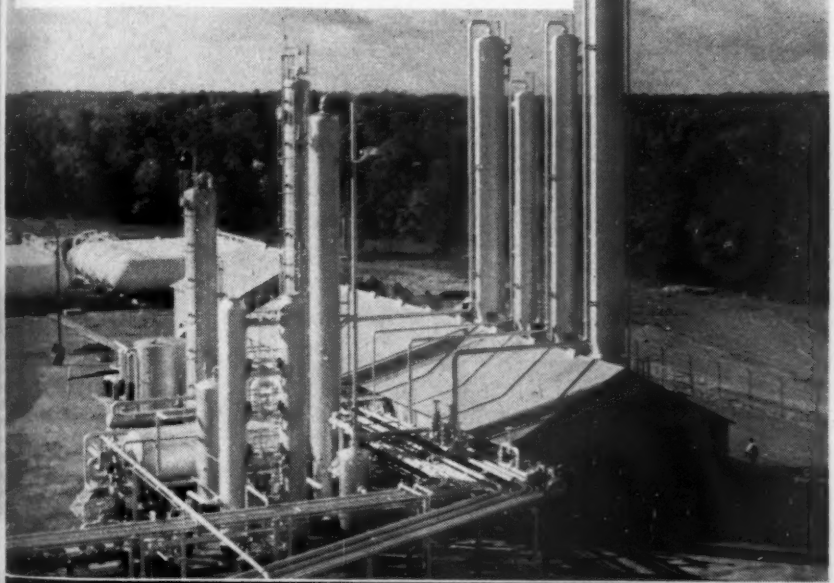
PRESSED STEEL TANK COMPANY

General Plant and Offices: 1487 South 66th Street
Milwaukee, Wisconsin

Containers for Gases, Liquids and Solids

WARREN
LIQUEFIED PETROLEUM GAS

To more adequately meet the growing wartime and industrial demands for our high quality Butane and Propane, Warren has completed its big modern plant at Crossville, Illinois. This photograph illustrates the tenth and newest Warren owned and operated plant producing high quality liquefied petroleum gas and is one of over thirty such sources of supply serving Warren's customers.



WARREN PETROLEUM CORPORATION

Tulsa, Oklahoma

BUTANE-PROPANE News

Reg. U. S. Pat. Off.

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Dallas, Texas—3645 Haynie Avenue. Phone: Justin 8-1764.
Chicago—1064 Peoples Gas Building. Phone: HARrison 6634.
Washington—Editorial Office, 850 Munsey Bldg. Phone: District 2118.

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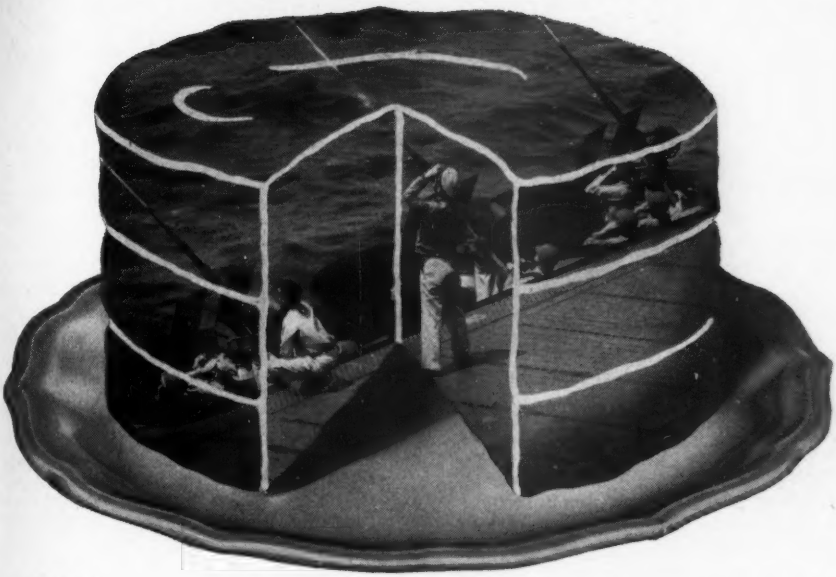
December, 1942. Volume 4, Number 12. BUTANE-PROPANE *News* is published monthly. Copyright 1942, by Western Business Papers, Inc., at 1709 West Eighth Street, Los Angeles, California.

Subscription price: United States, Mexico, Cuba, South and Central American countries (in advance), 25 cents the copy, one year $1.50; three years for 2.50; all other countries $3.00 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Member Audit Bureau of Circulation; Associated Business Papers, Inc.
Publishers: **G A S**, The *Natural* Gas Magazine; **HANDBOOK BUTANE-PROPANE GASES.**



New recipe for devil's food cake

Many a devil's food cake would have gone flat except for the correct degree of heat measured out by a Robertshaw Thermostat. But nowadays here at Robertshaw we're measuring heat for devil's food of a different kind—we're making boosters and shells for aircraft and anti-aircraft guns; we're turning out fuses for hand grenades, and primers and ignition cartridges for rockets. Likewise we make instruments for aircraft, and it's all work for which we have been peculiarly fitted during long years in the precision manufacture of Robertshaw Thermostats. What Robertshaw Thermostats we still make are used entirely on Government projects—a work which serves the double object of keeping our research department and engineering division looking toward new models for the coming days of peace.

For High Achievement in the production of war equipment.

ARMY E NAVY

ROBERTSHAW

ROBERTSHAW THERMOSTAT CO., YOUNGWOOD, PA.

LETTERS

Gentlemen:

In the transfer of LP-Gas from tank car to bulk storage tank, and from storage tank to cylinders, a certain loss is to be expected. However, I would appreciate your expression as to just what this should amount to.

Assume we purchased a tank car of LP-Gas containing 10,000 gals. How many gallons should we actually get into the bulk storage tank? And how many gallons should we actually get into the cylinders, which in our case, average about 72 lbs. per cylinder?

With this information we will be able to determine if our job of unloading the tank car and filling the cylinders is being done efficiently.

C. W.

Ohio

Loss in transfer from tank car to storage may run as high as 3.5% to 4.0%, depending upon the temperature and pressure of the tanks when unloading. If facilities are available for evacuating the vapors from the car by means of a compressor, this loss can be reduced to practically zero.

Loss in breaking hose connection to bottles should be no more than 1 cu. in. per bottle or .025%. Inaccuracy of scales and shut-off device should not be more than ½ of 1%. Loss from leakage should be zero in a well maintained plant.

If your yearly average unaccounted for is greater than 2%, depending upon the volume handled and the cost of product, there should be justification for closer plant control and maintenance and the installation of equipment to reduce the losses.—Ed.

•

Gentlemen:

We are confronted with a very serious problem in regard to 100-lb. drums. We were caught unaware, as many others were, and have no drums for exchange purposes. Due to the fact that we are serving a large territory and it causes many extra trips to fill each drum that is brought to us, we feel that it would be entirely legitimate for us to purchase a few drums for exchange only.

Will you please advise whether or not there is a way that we might purchase 10 drums.

W. F. K.

New Mexico.

It seems to be permissible under L-86 to buy cylinders for exchange purposes only, but you may have quite a bit of trouble locating them. Use Form PD-397 to apply for all exceptions to the order.—Ed.

•

Gentlemen:

Enclosed is our purchase order for $1 for one of your Gas Flow Orifice Calculators.

Would you tell us where we can obtain an orifice tool kit, consisting of an assortment of sizes of orifices, drills, holders, reamers, small wrenches, etc?

A. C. W.

South Dakota

One of our new Gas Flow Calculators has been mailed to you.

Anderson and Forrester, 3563 Larimer St., Denver, Colo., make orifice tool kits such as you seek. Standard twist drills can frequently be purchased from hardware dealers. All you would have to do would be to designate the desired size. However, it is likely that it will be difficult to obtain such drills at this time. —Ed.

•

Gentlemen:

During the course of regular instruction for employes of our distribution customer service department, cooperative dealers and certain Office of

Civilian Defense Personnel, we have found it helpful to supplement the actual mechanics of training technique with written material in the form of course outlines. In your publication BUTANE-PROPANE *News*, there is considerable material in the article "Characteristics of LP-Gas That Affects Its Fire Hazard," by Messrs. M. B. Anfenger and O. W. Johnson, of the Standard Oil Company of California, in the March, 1941, and April, 1941, issues that we would like to make available to those receiving training.

May we have your permission to incorporate applicable sketches, tables and other pertinent information or quotations from this article for use in this project?

R. C. Terradell
Supervisor
Distribution Department Employe Training
Southern California Gas Company
Los Angeles, California

We are very glad to grant you permission to make use of the material you request which has appeared in our magazine, but ask that you extend credit to BUTANE-PROPANE *News*. —Ed.

•

Gentlemen:

I have been a regular monthly reader of your magazine for the past several years. I wonder if you could help me with a problem I have. I am trying to find some spot where I may best serve in the war effort of our country for the duration.

I have tried to enter several branches of the government service but due to a leg injury I have not been accepted.

I have been actively engaged in selling, estimating and supervising installations of LP-Gas plants, various types of equipment and appliances for use for all types of gas, oil and electric domestic and commercial installation jobs.

Could you tell me of any branch of the service I could enter—here or in foreign territory? I do not want a job with any private company.

Stanley R. Iverson
711 East McDowell Road
Phoenix, Arizona

There may be a chance for you to get into the Army Specialist Corps, provided your draft classification is 3A or lower. Write in duplicate a letter stating fully your classification and indicating any specialized engineering or fuel utilization training and experience that you have had. Address the original to the Army Specialist Corps, Adjutant General's Office, Washington, D. C. Send the carbon copy to the Chief of the Military Personnel Branch, Office of the Chief of Ordnance, United States Army, Washington, attention of Captain Gaffney.

We also suggest that you file your name with Servel, Inc., Evansville, Ind. Sometime ago the United States Government requested Servel to obtain the names of as many experienced LP-Gas engineers and operators as was possible so they could give them special assignments in the Army.—Ed.

•

Gentlemen:

Please send us BUTANE-PROPANE *News* for three years. We are identified with the distribution branch of the industry.

We have a car equipped to run on propane gas and anticipate making a trip from Woodridge, N. Y., to Miami. We would like to get a list of bottling plants situated on the route between Woodridge and Miami, so that it will be convenient for us to refill.

Henry H. Penchansky
Best Natural Gas Corporation
Woodridge, New York

It would be quite impossible for us to furnish you with a list of bottled gas plants between Woodridge and Miami, Florida, but you are likely to find domestic dealers in numerous towns along the way and from most of them you will be able to secure LP-Gas for your car.—Ed.

•

• **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

Is LP-Gas Available?

By W. A. "BILL" BADEN
Vice President, Anchor Petroleum Company, Tulsa, Oklahoma

IT is not unusual that many non-defense consumers of LP-Gases should be wondering about the immediate supply of these products during the war emergency period, as well as about the transportation situation. For so much has appeared in the press recently in connection with the heavy demands of the new synthetic rubber and aviation gasoline plants for LP-Gases that it might be concluded there could develop a shortage for the normal consumers of these products.

There is no question but that this new demand will at least interfere with the supply formerly available to the commercial trade. These defense plants are, naturally, drawing for their supply from sources most advantageously located, or where quantity and quality of products produced best fit their needs, or for transportation reasons. This means that non-defense users must be supplied from other available sources which might mean longer hauls, and, therefore, with additional transportation handicaps.

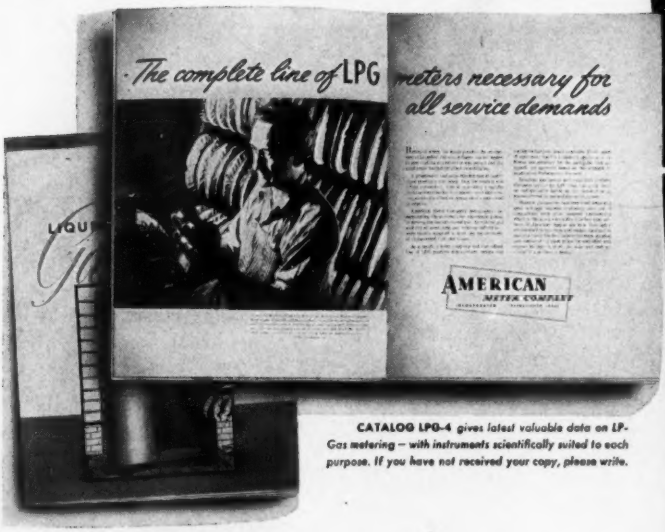
As it appears at this moment, the total LP-Gases available to the domestic trade may not be seriously curtailed by additional war demands. In most instances, aviation gasoline and synthetic rubber plants have already developed their sources of supply by building new extracting projects not heretofore developed. Also, new technical developments are making available to them suitable gases for a large portion of their needs that have never been a factor in the LP-Gas trade. Newly erected isomerization plants can produce for them the maximum amount of isobutane from the minimum amount of commercial butane.

Readjustment of supply sources and transportation difficulties incident to the war emergency will have to be anticipated and expected. But it is reassuring to realize that the war industries are not drying up the sources of supply to any alarming rate, and that, even though there may be expected longer hauls and transportation delays, a satisfactory supply of LP-Gas still exists.

W. A. BADEN

Guest Editor for December

Metering:



CATALOG LPG-4 *gives latest valuable data on LP-Gas metering — with instruments scientifically suited to each purpose. If you have not received your copy, please write.*

ITS PLACE IN LP-GAS SALES PROMOTION

● In the handling of Butane-Propane gases, station metering and bulk plant metering of the vapors are established practices. ● Today, however, the industry is fast realizing that metering not only has a functional use in practically every other method and phase of LP-Gas distribution, but that it also has a direct influence upon sales. ● The "good business" psychology of this extended use of metering is based upon the recognized public approval of *metered* sales of gas, electricity and water. Above all, metering means "honest measure," from the consumer's viewpoint. ● The long experience of American Meter Company in the LP-Gas field, and its complete range of meter types, give full assurance that customers' confidence will not be misplaced.

GENERAL OFFICES • 60 EAST 42ND STREET, NEW YORK, N. Y.

AMERICAN METER COMPANY

INCORPORATED (ESTABLISHED 1836)

MAINLY BEYOND THE MAINS

The Month

Internal reorganizations within the WPB have practically ceased to be news but the wheels of political fortune in the Plumbing and Heating Division, which still nominally embraces the functions of the LP-Gas industry, turned a trifle to elevate to the position of Chief of the Liquefied Petroleum Gas Equipment Unit, Paul K. Thompson, formerly an assistant to John F. Steele, one-time Chief of what was formerly known as the LP-Gas Section of the Plumbing and Heating Branch.

Under the new nomenclature which invariably accompanies any new inter-departmental set-up in WPB, the LP-Gas Unit comes under the Fuel Burning Equipment Section of the Plumbing and Heating Division of WPB. Although the functions and the authority of the newly created Unit remain the same as those of the so-called Section which it supercedes, it would appear on the surface that the industry has been relegated to a position of even less importance than its already minor role in WPB.

This lends color to the belief and hope expressed in many quarters that the day is not far distant when jurisdiction over LP-Gas will be taken out of WPB and placed in the Office of the Petroleum Coordinator for War, under the Natural Gas and Natural Gasoline Section, where it logically belongs.

The existing organization within WPB has done an excellent job of processing PD-397 forms, having handled well over ten thousand since April of this year when order L-86, freezing all new installations, was issued. Since something over 50% of these requests have been approved, they have gone far toward cushioning the force of the blow that order L-86 dealt the industry. Now, however, with the shortage of materials becoming increasingly felt, the volume of these applications is falling off, and the larger questions of availability of gas, and of transportation and large scale handling facilities loom as the major problems to be dealt with for the duration of the war. The Plumbing and Heating Divison of WPB is far removed from

such questions, and it is only by leaning heavily on the experts of the OPC that its LP-Gas Unit is able to keep abreast of the rapidly changing picture in the fuel industry. Since only OPC is qualified to **speak** with authority, it must one day be invested with the full administrative right to **act** with authority on all matters pertaining to all types of fuel.

* * *

The next important step that the industry must undertake from within, or have it undertaken from without, is the pooling and integration of all transportation, distribution and bulk storage facilities for both butane and propane. Much has already been accomplished along this line, particularly on the Pacific Coast, but the government view of the situation is that it is more acute than the industry realizes and that much more can be done to the end of keeping all existing facilities for both transportation and storage operating at maximum capacity. The once anticipated butane shortage exists now only as a remote possibility, and with the operation of the new alkylation plants now being completed in the high octane gasoline program, there is every indication that within the coming months there will be more, rather than less, butane available.

It has been estimated that the present output may be increased by up to fifty thousand barrels per day within the next few months.

Since this new output will mean new points of origin for the gas, it will be the responsibility of the refiners and marketers to reexamine their own positions with respect to how they may best serve the entire market with a minimum of transporting. This may mean taking a competitor's output for delivery to a distributor's bulk station, and it may mean relinquishing entirely a contract with a distributor where some other source of supply is closer at hand.

New supplies of butane will probably be reflected in an increased number of industrial installations directly concerned with the war program, and this again will mean an increasing tax on our already strained transportation facilities. Also to be considered is the ever present possibility that LP-Gas tank cars may be taken away from the industry and assigned to the transportation of other gases or fuels.

The whole story adds up to the fact that there is and will be plenty of gas, but it is going to become harder and harder to get it moved where it is needed when it is needed. And no factor in the industry can safely ignore the fact that his own transportation problems cannot be considered solved until those of every

other operator from producer to dealer are placed in the best possible condition.

* * *

WPB is cagey about releasing any information regarding the compliance check that is now being made to see whether the industry as a whole is abiding by the restrictions imposed by the freezing order, L-86. This turned out to be a fishing expedition, in which about 650 companies are being checked, and the indications are that violations uncovered will not be sufficient to call for a complete compliance check of the entire industry. Those who have been picked for investigation have in most instances been selected at random, and there is no implication intended that their activities were unduly suspect.

* * *

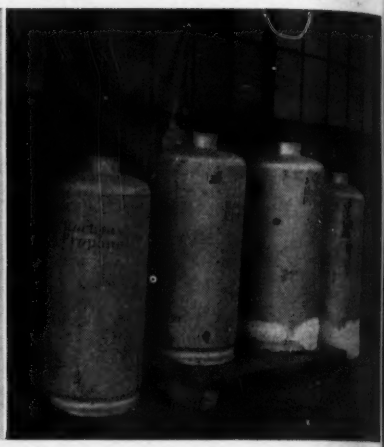
The Industry Committee, long projected by the LP-Gas Unit, still remains unappointed, a neglect that may result in seriously handicapping LP-Gas in its relation with the new Controlled Materials Plan which is to replace the Priorities System and the Production Requirements Plan. The end product of the Controlled Materials Plan is to mean that all non-essential production will come to a halt. The plan is to go into effect gradually, but will be complete for, and embrace, all industry by July 1 of next year.

In a press release from the Office of War Information it is stated that: "Permanent connection with industry will be maintained through active Industry Advisory Committees assigned to each branch. . . . They will get advice from the industry on methods of increasing supply where shortages exist, of controlling the distribution of resources . . . obtain data on available and anticipated supply of resources and requirements for civilian use and for maintenance, repair and spare parts."

The overall purpose of the plan is to balance production schedules with materials available so that the finished products, for both military and civilian needs are completed and available when and in the quantities needed.

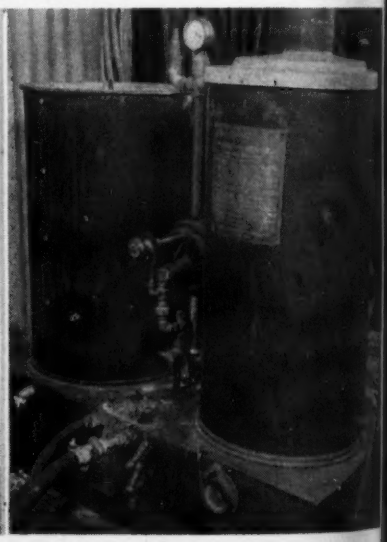
Whether LP-Gas, as a Unit rather than a Branch, will now be entitled to an Industry Committe drawn wholly from its own ranks is not clear. Had such a committee been appointed and functioning at this time, as it might well have been, its status would have been already established, and the need for its continued functioning should have been self-evident. It is to be hoped that the LP-Gas Unit will delay no longer in the selection of such a committee, if its function will be recognized within the framework of Controlled Materials Plan operations.

LP-Gas at Industrial Plants



ABOVE: Interior scene at H. H. Robertson Co.'s Los Angeles plant showing (left) stack of celotex and (center) wall panels ready for shipment. The cylinders at right provide propane 24 hours daily. Note "frost" at bottoms of two, indicating heavy withdrawals.

BELOW: (Left) Pouring hot asphalt on the celotex before steel plates are pressed to it. (Right) The propane-fired boiler which heats cleansing bath for engine parts in the plant of Beeson Bros. Supply Co., Los Angeles.



Nine Ways In Which Propane Is Fighting The War

AVENUES of expansion open to LP-Gas dealers are now limited largely to installations for the armed forces, defense housing projects and industrial plants handling war contracts. The high efficiency of LP-Gas and the shortage of other fuels, place it in great demand.

Dealers should be alert to opportunities in their localities to introduce propane or butane into war plants which are suffering for more fuel for their various manufacturing processes.

We know of dealers who have been turned down on hundreds of applications they have made for exceptions to existing orders, but find that nearly always they desired to make installations where other fuels were already in use or were easily available. Our suggestion is to make certain that your prospective customer's needs come within the range of Government limitation orders.

The scope of the war effort is so comprehensive that it is difficult to indicate the total possibilities by citing examples. Permissible installations, like gold, are "where you find them." Those which we have installed are determined by the type of equipment, the location of the customers, and the fact that we are specialists in the "bottled gas cylinder" business.

• **LAST MONTH R. G. Hardie, secretary of the Imperial Gas Co., Los Angeles, told our readers how his firm was operating under wartime restrictions—the class of business sought, the kind of applications granted by the WPB, and the kind turned down.**

This month Mr. Hardie describes nine specific installations and kinds of installations that his company and its dealers have made recently.

Other classes of installations are described elsewhere in this issue and more follow next month.—Editor.

We have made the installations from equipment already in stock. We have not required priorities in most cases.

It may be helpful to enumerate several "Rockgas" (propane) installations that have been made by the Imperial Gas Co., of Los Angeles, and its dealers. The ones cited below have been approved by the War Production Board after we submitted PD-397 applications:

1. The H. H. Robertson Co., with plants in Pennsylvania, California, Canada and England, is making prefabricated building walls in its Los Angeles sub-assembly plant. This plant for the time being is devoted exclusively to this operation, the product being for the Bohn Aluminum extrusion plant in Torrance, Calif. Johns-Manville celotex is cemented to panel plates with "petrolastic" asphalt. A non-hardening calking compound fills the ribs where sections are joined to form water proof seams. The asphalt is heated in two 50-gal.

kettles, or drums, by propane burners. Operations are under the direction of E. F. Cole and extend over a 24-hour day. From 50 to 100 gals. of fuel are used daily. Each drum holds about 450 lbs. of asphalt. The installation was made by C. L. Spurgin.

2. Company engaged in the manufacture of airplane plastics. Gas used in 15 100,000-B.t.u. blower furnaces which heat the shop. Furnaces are in operation 24 hours a day. The outfit consists of 12 210 lb. capacity I.C.C. cylinders, and deliveries are made three times a week on a route.

3. Company engaged in essential war work, including manufacture of oil coolers, inner coolers and cabin pressure equipment, all of which will be used on the Boeing B-29 and the Consolidated B-32. Uses approximately 500 gals. a month in an outfit consisting of three 210 lb. cylinders. Propane is used for melting silver solder.

4. Beeson Bros. Supply Co., Los Angeles, has installed a propane unit of two 210-lb. cylinders and regulator to heat a flash type boiler from which water is used for making a cleansing bath of Oakite to remove grease, paint and light rust from engine parts and other machinery. Directing the operation of the unit is F. M. Trobee, foreman, who states that the propane has given them excellent results and speeded up the heating process. The unit is also used for steam cleaning. War orders constitute 95% of the company's business.

5. John J. Bravos, Gardena, Calif., was formerly engaged in farming but found it more profitable to move and go into the raising of poultry, which has been encouraged by the Department of Agriculture. He moved into a house which was equipped for electricity and where electric appliances had been used by the former occupant. The WPB granted permission to install "bottled gas" since consumer had an Electrolux, gas range, and gas room heaters.

6. Medical corps in the army of one one of the United Nations is using our gas in the Middle East in its hospitals and for its dental operations. Much of the hospital equipment is manufactured only for use with gas and this makes the use of bottled gas essential wherever pipe line gas is not available.

7. Torpedo boat division of an United Nation navy has ordered 200 40 lb. capacity I.C.C. cylinders for installation on these small boats. This order came to us through another country. In this particular case it was necessary for us to place an order with the manufacturer, who had the plate in stock. The order carried a high priority.

8. A large number of trailer installations have been made for defense workers who find that trailers are a good way to "beat the high cost of living" or who in some cases find that it is their only means of housing in crowded defense centers.

9. A large number of ordinary domestic consumers who are aiding the war effort in one capacity or another, who are without other practical means of cocking, and who have gas appliances.

We repeat again, however, that with certain exceptions our present work is liquidating a stock of cylinders which was frozen by L-86. We are of the opinion that very few liquid gas cylinders will be manufactured for the balance of the war and only on high priorities. All this we believe points to the urgent necessity that confronts every company to make the best use of every piece of equipment in their service.

Members of the LPGA "caravan" who attended fall meetings of the Pacific Coast Section. Left to right: A. C. Maynard, Shell Oil Co., Inc.; D. D. Purrington, Standard Oil Co. of Calif.; F. R. Fetherston, National secretary; Chas. E. McCartney, Petrolane, Ltd.; W. T. Joplin, Butane Corp., and chairman of Pacific Coast Section.

Transportation, Manpower Are Industry's Big Problems

By PAUL LADY

DIVIDED this year into four sectional meetings, the annual fall conference of the Pacific Coast Section, Liquefied Petroleum Gas Association, was held in Los Angeles, Fresno and San Francisco, Calif., and Portland, Ore., on Oct. 26, 28, 30 and Nov. 4.

Featured speakers at the meetings were Frank Fetherston, LPGA secretary from New York, and W. T. Joplin, chairman, Pacific Coast Section. Other men appearing on the programs at one or more of the meetings included Chas. E. McCartney, Petrolane, Ltd., Long Beach; Ernest Fannin, vice-president LPGA, Phoenix, Ariz.; D. D. Purrington and H. L. Costello, Standard Oil Co. of Calif., San Francisco, and A. C. Maynard, Shell Oil Co., Inc., San Francisco.

Meetings, held in the respective cities were directed by Section Chairmen Harry Horn, Los Angeles; Don West, Fresno; W. B. May, San Francisco and C. M. Ambrose, Portland.

Bringing the latest developments of the national scene to the Pacific Coast, Frank Fetherston presented a picture, not bright, but offering definite assurance that the LP-Gas industry is doing its job in the national war effort and will be maintained until that time when conditions will again allow expansion.

Mr. Fetherston's report showed clearly that the work of the Association in Washington has been important. By representing the in-

dustry instead of any one group, the Association has received hearings and obtained rightful concessions that will help the industry keep alive for the duration.

High points of Mr. Fetherston's talk included:

We must face the facts and do the best we can with what we have.

With few exceptions, new equipment, new materials cannot be had—except that required for the armed services.

Dealers must utilize what they have—expansion is out of the question except for war industries.

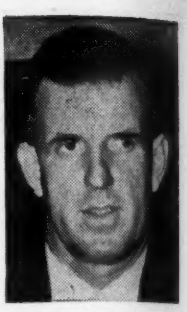
The Association has presented the industry's case so that Washington officials now recognize the importance of the industry and are less inclined to impose harsh and blanket regulations. We are doing many things today that we would not be doing if our case had not been heard.

A good example of this is the right to maintain customers as of April 1—with the privilege of using equipment which was in service at that time on approved new installations.

A second example is the work done by the Association to stop proposed coupon rationing of all LP-Gas. Washington officials agreed that the plan was impractical when they were shown the injury such a move would have on the industry.

HARRY I. HORN

The industry is believed to have conformed well with all wartime orders but WPB is now checking at random 500 installations to determine if any illegal ones have been made.



ERNEST FANNIN

The Association should have the support of every dealer, wholesaler, producer and manufacturer — we must work together and have the same objectives.

The Association has one main objective now. We must all do everything we can to win this war.

Speaking with a knowledge gained by years as an employe of one of the nation's largest rubber companies, plus many years as a leading LP-Gas dealer, Pacific Coast Chairman W. T. Joplin gave a none-too-heartening but a realistic picture of what industry members must face in the way of transportation and manpower problems. Referring to transportation, Mr. Joplin predicted:

Truck tires will be scarce. Truck carcasses will be extremely difficult to obtain, if available at all. New tires will be inferior at first. Pure rubber will not be available for civilian needs. Synthetic will not fill the entire need for some time to come.

Truck mileage must be cut down—operations must be planned to fit what we have. Every mile must count in delivery—customers must cooperate with dealers if they are to get service and must take a full tank whenever the truck calls.

On the man-power question, Mr. Joplin stated:

The men we employ will not be as skilled or as efficient as in the past.

We will continue to lose our employes and must put up with what we can get.

Dealers using inexperienced help must try to guard against hazards in handling fuel and should continue to train all employes on the rules of safety and caution.

Customers today are more willing to accept inefficiency and will cooperate when required to do so.

A paper on the subject, "Supply and Transportation of LP-Gas on the Pacific Coast" was prepared by Chas. E. McCartney and presented by him at Los Angeles and Fresno.

The overall picture indicates that no existing customers will be without gas.

Our biggest problem seems to be transportation.

The tank car and railroad transportation situation seems bad.

Every dealer should attempt to keep every tank filled to capacity.

All members of the industry must combine facilities and services, particularly those concerned with transportation, and including, when feasible, the exchange of customers and gas.

Conserve on trucks—repair and prepare trucks for heavy winter months.

Long hauls for small loads should be eliminated.

DON WEST

W. B. MAY

C. M. AMBROSE

This paper was presented by D. D. Purrington in San Francisco and Portland.

Part of Mr. McCartney's paper was prepared as a result of letters from major oil companies on the coast received in answer to questionnaires sent to them. Although few production facts were obtained, conclusions were drawn that led Mr. McCartney to state:

There will be little, if any, increased supply.

Although there may be a few local shortages, the overall supply should take care of needs.

Speaking at the Los Angeles meeting only, Ernest Fannin, vice-president, LPGA, spoke on "The Importance of Membership in the Association." Mr. Fannin urged every person connected with the industry to join now and take part in the work it is doing. The bulletins on Washington orders distributed to members by the Association are alone worth the membership fee, he stated.

Butane at New Steel Plant Performs Important War Job

CALIFORNIA'S new steel plant, another of Henry J. Kaiser's miracle developments, located near Fontana, Calif., is scheduled to produce iron ore before the year's end. Whether or not production schedules will be maintained in this momentous development will depend to a large extent on the butane-air system now in operation at the plant.

Butane became an important factor in the initial production of iron ore when engineers decided to use LP-Gas as a pre-heating fuel for the coke ovens. These coke ovens, built of a special type of refractory clay brick, must be heated to approximately 2000° F. before coal may be introduced. A reliable fuel of high B.t.u. content must be used and the heat maintained until coke gas, produced by roasting coal in the ovens, is available.

In the case of the Fontana plant, butane was chosen as the most reliable, accessible fuel to be had in the present emergency. Natural gas was not feasible due to the heavy demand war production is now placing on existing facilities.

American Liquid Gas Corp., of Los Angeles, was given the contract for the construction of the butane-air plant. The system is of a temporary nature and is to be removed when the coke ovens are in full operation and capable of supplying coke gas for the ovens.

Like all Kaiser projects, the Fontana steel plant is of huge proportions. For the preparation of coke, from coal, shipped from the state of Utah, engineers built 90 coke ovens. They are laid out in two batteries of 45 each. The annual production of these ovens will be over 345,000 tons of coke, according to engineers' figures.

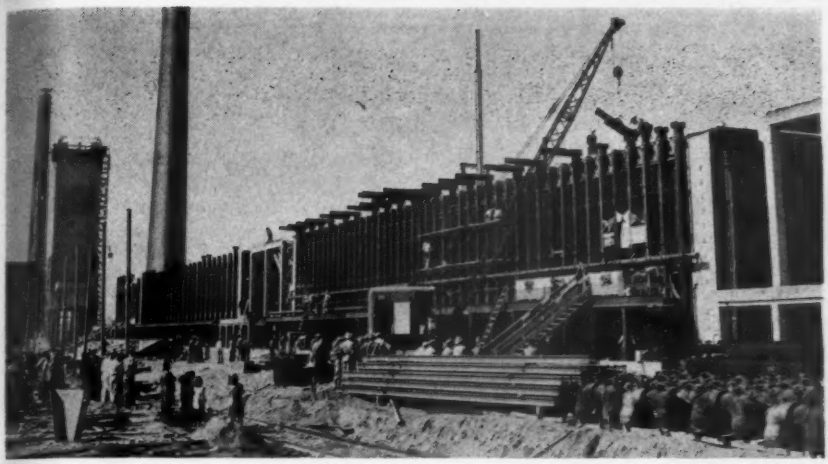
Preheating Period Is Nine Weeks

The original firing of the batteries was staggered with the heating of battery No. 1 beginning Nov. 5; the second on Nov. 16. Preheating continues for a period of nine weeks.

The butane-air plant consists of five combination units manufactured by the Gasair Corp. of San Francisco, connected on parallel manifolds with a total capacity of 50,000 cu. ft. of mixed gas per hour. The units vaporize and mix a commercial blend of butane with air to a finished gas of 1400 B.t.u. per cu. ft., having a delivered pressure of 5 lbs.

Mixed gas is piped through a 6-in. underground welded line to a point between oven batteries where pressure is reduced through 10 2-in. reducing regulators to a downstream pressure of 14-in. water column.

The fuel supply comes from three horizontal butane tanks with a total



The Henry J. Kaiser steel plant where butane does a 24-hour shift pre-heating coke ovens.

capacity of 22,500 gals. These are set on concrete piers. Fuel consumption will vary greatly over the nine week period, running as low as 100 gals. on the beginning day to a peak load of 16,000 gals. on the 48th day. Vaporizing equipment must be capable of handling this diversified load without interruption.

Besides a great variation in gallonage over the nine-week heating period, there will be a noticeable change in the B.t.u. value of the gas. The butane-air used during the first 42 days will have a 1450 B.t.u. content while the gas used during the remaining days will be of 750 B.t.u. content. The coal gas to be eventually used will have a 550 B.t.u. content.

The pre-heating must be conducted gradually to permit natural expansion without cracking the structure. With butane-air as a fuel the temperature can be controlled closely at all points and at all times.

Will Increase Temperature Daily

Temperature will be increased at the burners from day to day throughout the period of nine weeks. When the ovens reach the required maximum heat and are uniform throughout, the coal will be introduced by mechanical means. It is pushed through the ovens, taking approximately 18 hours to complete the procedure. When it emerges from the opposite end—a distance of about 50 ft., it is finished coke. All gases have been driven off while the coal is in the ovens and have been collected for future use for the ovens and for other commercial and domestic uses around the plant.

LP-Gas Industry Development

By G. L. BRENNAN*
Manager, LP-Gas Division, Warren Petroleum Corp., Tulsa, Oklahoma

THE development of the liquefied petroleum gas industry has a prominent place among the many factors influencing the conservation of products from petroleum. Large volumes of liquefied petroleum gas, formerly wasted, are now being conserved for important uses.

G. L. BRENNAN

Earliest available statistics show sales of about 200,000 gals. of propane for the whole year of 1922, used largely for home cooking in Eastern states. During 1942 it is probable that nearly 2,000,000 gals. (50,000 barrels) each day will be produced and sold to care for the wide spread demand of the various outlets for these products, over and above the quantities normally used in the manufacture of finished motor fuel. These 2,000,000 gals. of liquefied petroleum gas are equal to approximately 200,000,000 cu. ft. of natural gas, or about 400,000,000 cu. ft. of manufactured gas. These quantities are equal to 5% of all the utility sales of natural gas during 1941 and reach the startling equivalent of over 30% of all the manufactured gas sold in 1941.

Reviewing statistics prepared annually by the Bureau of Mines, the following amounts of liquefied gases were marketed from 1935 to 1941, inclusive:

Year	*Total Gallons*
1935	76,855,000
1936	106,652,000
1937	141,400,000
1938	165,201,000
1939	223,580,000
1940	313,456,000
1941	462,852,000

It is estimated there are more than 100 concerns manufacturing these products at more than 150 different plants throughout the United States.

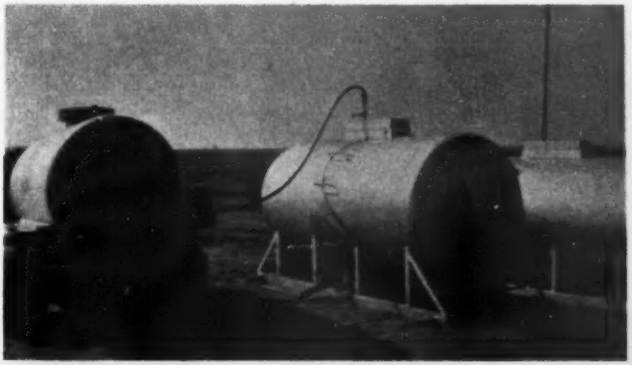
Liquefied petroleum gases are defined as hydrocarbon products, composed predominately of butanes, butenes, propane or propylene. They are manufactured at natural gasoline and pressure maintenance, or so-called recycling, plants in the field and at many large oil refineries from refinery gases. Liquefied petroleum gas made at refineries generally contains appreciable percentages of unsaturates such as butenes and propylene which are entirely satisfactory, except in certain special fields of utilization. At natural gasoline

* An address delivered before The Interstate Oil Compact Commission, which met in Chicago Oct. 1-3.

plants wet or casinghead gas is processed through compressors, absorbers and fractionating towers to extract and separate the various grades of stabilized natural gasoline, butane, iso-butane and propane and the dry residue gas is available to natural gas pipe lines, carbon black plants and other fuel purposes. From two to four fractionating towers are required in a plant making liquefied petroleum gas depending upon the number of separate products desired, although frequently it is possible for a plant having only one fractionator for stabilizing natural gasoline to produce a certain amount of propane-butane mixture by condensing part of the stabilizer overhead and weathering off the ethane and part of the propane to bring the vapor pressure of the resultant product to the required limits. This method is, of course, wasteful and where economics permit most operators either originally install or have added the additional equipment to obtain a satisfactory efficiency.

Large additional supplies not presently extracted exist at locations long distances from markets, at plants too small to justify extraction at present price levels, or are being sold as residue to carbon black plants, or for fuel gas at attractive prices compared to returns obtainable after large expenditures in manufacturing equipment. Present difficulties in securing new equipment are also an important obstacle to increased extraction because of more important war needs for steel and other materials, although where necessary to obtain increased isobutane for aviation gasoline, the War Production Board and Office of Petroleum Coordinator have generally allocated the necessary materials.

Although the amount of liquefied petroleum gas presently marketed as such may appear large, it should be kept in mind that this is relatively small as compared to the total butane blended with gasoline, together with the quantity of butane and propane processed to make gasoline by various methods. It is rash to make predictions of future supply and demand, but it is



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Delivery of LP-Gas from tank truck to two 1500-gal. storage skid tanks on an Oklahoma City water works construction job.

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hoped that the two can be kept in balance in the face of curtailment of gasoline sales and difficult transportation problems.

Liquefied petroleum gases have many interesting properties. At average atmospheric pressure and temperature they are gases, but must be liquefied at the manufacturing plant by pressure for storage and transportation. At the point of use the liquid state is convenient only for storage and they must be returned to the gaseous state once again for use in gas consuming appliances of all types. As liquids they have the same appearance as water white gasoline. In the liquid state these products are lighter than water; in the gaseous state they are heavier than air. They have a very high thermal value per cubic foot and a comparatively low maximum flame temperature. The products extracted from natural gas are relatively inactive chemically, while the unsaturated hydrocarbons found in refinery production are considerably more active. Because of their high octane value, butanes and propane are excellent fuels for internal combustion engines, but economics limit such use and isobutane can be more advantageously combined with other hydrocarbons by alkylation to produce base material for 100-octane aviation gasoline. Stored and handled in properly designed equipment, liquefied petroleum gases are among the least hazardous of petroleum products.

With the thorough knowledge of these and other properties, the pioneers of the liquefied petroleum gas industry developed satisfactory manufacturing, storage, transportation and utilization equipment on sound engineering, economic and safety principles. Industrial and retail sales organizations spent years discovering, cultivating and servicing markets for these materials with ultimate financial success to the majority and a large and growing number of satisfied users. Results in 1941 indicated that the industry had attained a position of importance in the gas and petroleum fields with greatly increased sales to be made in 1942. As we all know, this situation changed over night and early in 1942 all new installations of liquefied petroleum gas equipment were placed under control by the War Production Board in Limitation Order L-86. Since then only new installations required for essential War Effort have been approved.

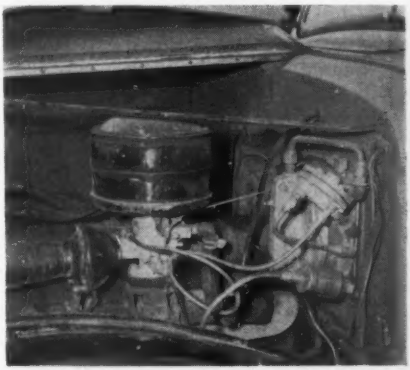
The Two Chief Uses

The liquefied petroleum gas industry has developed two principal markets for its products—domestic and industrial, although substantial quantities of butane and propane are used by the utility gas industry for distribution in small cities or as standby to natural gas operations; chemical plants process these gases to manufacture a variety of products and new methods of chlorination and nitration offer increased outlets in the future. Polymerization, alkylation, isomerization, dehydrogenation and other processes which change the combination of the carbon and hydrogen atoms now being developed will no doubt demand additional volumes of liquefied petroleum gas in

the future. The location of chemical plants adjacent to large supplies of natural gas in certain oil fields is another possible move toward securing increased conservation of our resources.

Butane, propane and various mixtures of the two, furnish over 2,000,000 American families a high quality low cost gaseous fuel for cooking, water heating, refrigeration and house heating beyond the gas mains. These fuels are distributed by tank truck direct from points of production to surrounding territory or by tank car to bulk storage plants with subsequent delivery in tank trucks or in portable cylinders of various sizes. This business of serving such a large number of domestic users has required an investment of well over $200,000,000 in expensive high pressure tanks, cylinders, controls, tank trucks, tank cars and other servicing equipment to say nothing of the cost of manufacturing plants or the large expenditure of consumers for household gas burning appliances. To render continuous uninterrupted service to this large number of families under present conditions places upon the shoulders of the industry a truly grave responsibility. Complete cooperation between the various war agencies and the industry will do much to secure satisfactory results.

The use of liquefied petroleum gas for a variety of industrial heating operations is another major outlet for these products. Because of economy, high purity, efficiency of combustion, ease of control and adaptability, butane and propane are now used by hundreds of industrial concerns throughout the country for such important operations as annealing, normalizing, drawing, carburizing, hardening, forging, soft metal melting, bright annealing, space heating, metal cutting, die casting, galvanizing, paint drying, core baking, water pumping, electric generation, air conditioning, automotive engine block testing, switching locomotives, glass melting and annealing, frit smelting, vitreous enameling and many others. The industries equipped to use these fuels are now engaged in manufacturing war materials and in many cases have greatly increased their fuel requirements. New war material plants located beyond gas mains or at locations where local utility gas supplies are not sufficient, are depending on the liquefied petroleum gas industry to supply their demand for fuel. Thus far such requirements have been fully met by the industry. The supply of special tank cars and the freight handling ability of the rail-



The use of LP-Gas for automotive fuel in heavy duty equipment is popular on Pacific Coast. This is an "Algas" carburetor installation on truck.

roads are important factors in keeping this "natural gas on wheels" moving to industrial consumers.

The program of this meeting deals chiefly with conservation of natural resources hence it is not out of order to mention an important possible use of propane in replacing high octane aviation gasoline for the testing of airplane engines at manufacturing plants. Efforts along these lines have thus far brought no results but it is hopeful that large quantities of propane will be used for this purpose in the near future, thus releasing more high octane gasoline to our armed forces.

Town Plants and Standbys

The gas utility field has found butane and propane of value in supplying gas through pipelines to small cities at reasonable rates. Over one hundred communities are so served and the utilities have benefited financially from this new and improved method. Liquefied petroleum gas is also used as standby for many large cities using natural gas or mixed gas. Here in Chicago, Peoples Gas Co. has large capacity butane storage and during several pipeline interruptions the economy and adaptability of butane as a substitute gas has been proven. The American Gas Association Testing Laboratory has contributed valuable technical data on the use of liquefied petroleum gas as a substitute for manufactured, mixed and natural gas.

Liquefied petroleum gas as a fuel for internal combustion engines has had considerable development on the West Coast where large excess supplies of the product and high gasoline costs gave a highly favorable economic margin to the user. Elsewhere this margin is not so great, hence, increases in the use of liquefied petroleum gas in highway vehicles has been slow, being confined largely to use in tank trucks which transport such products. In stationary engines, oil well drilling rigs, switching locomotives, earth moving and mining equipment, the use of liquefied petroleum gas is increasing.

Butane and propane are used as raw materials in many important chemical processes although present volumes are not relatively large. No doubt these products and other fractions of natural gasoline will find many new uses in the chemical field but the prospective volumes needed may not be significant in relation to the total used for other purposes. Industrial and household fuel requirements will probably continue to be the most important outlets.

Butane for Rubber Is Uncertain

To what extent normal butane will be used in the manufacture of butadiene for rubber is still a big question—possibly much of the proposed refinery conversion program suggested will use other petroleum fractions—nevertheless, normal butane remains an important raw material for the production of synthetic rubber.

Normal butane for isomerization and isobutane for alkylation are very important to the war effort in the production of 100-octane aviation gasoline and increasing quan-

tities are being used for these processes as new aviation gasoline manufacturing capacity becomes available.

Nearly every time a new chemical product with beneficial qualities is produced this same product has hazardous characteristics which require careful and intelligent handling to prevent accidents. Liquefied petroleum gas is no exception to this generality and has long been recognized by the responsible elements of the industry. Through cooperative work with insurance companies, state and federal regulatory bodies and safety organizations the industry has established a record of safety that can be pointed to with pride. Such organizations as the Interstate Commerce, Bureau of Explosives, Compressed Gas Manufacturers Association, Underwriters Laboratories and National Board of Fire Underwriters and many state safety authorities have all contributed to the safety program of the industry and have provided uniform standards of safety throughout the country. Many states have adopted the same standards as law.

Production Must Be Kept High

The future presents many uncertainties to all industry and particularly to the petroleum industry of which liquefied petroleum gas business is a part. To continue to maintain present production of liquefied petroleum gas is in itself a problem, let alone obtaining additional extraction. The production of most of our liquefied petroleum gas is tied in with the production of natural gasoline which in turn is materially influenced by market demand and by crude oil allowables in the various oil fields. Thus we have a long chain of events which influence the amount of liquefied petroleum gas, particularly isobutane, that can be made available for war effort and civilian purposes. Statistics showing production or potential production do not always allow for the many contingencies that arise from day to day or month to month, hence, it is highly important that natural gasoline and liquefied petroleum gas production be maintained at high levels and that requests for equipment to increase extraction of liquefied petroleum gas in selected locations have serious consideration at all times so that reserves may be available to handle all demands.

The development of the liquefied petroleum gas industry is another one of many examples of American industry using the combined efforts of research, engineering and salesmanship to build new enterprises which conserve natural resources, increase employment, bring enjoyment and comfort to the public and add materially to the national income. We are sure that the future will some day permit even greater results from this relatively new industry.

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Texas Railroad Commission Makes James Baskin Chief

James Baskin, of Cameron, Texas, and formerly chief statistical clerk of the oil and gas division of the Texas Railroad Commission, has been advanced to chief of the division.

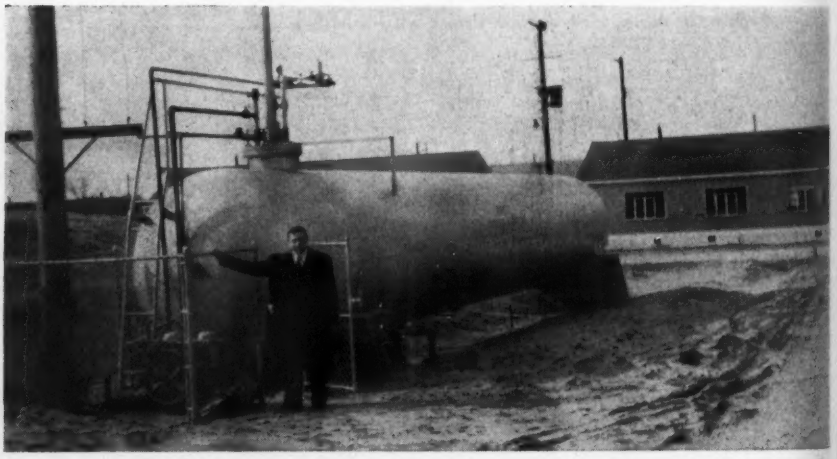
Clinton Owsley has been named to the position of chief statistical clerk.

Defense Housing Installations Prove Boon to Eastern LP-Gas Firm

PROPANE gas is playing a successful part in the nation's defense housing projects. Large numbers of the homes being erected throughout the country for defense workers will be equipped with propane cooking and water heating facilities.

Representing a striking illustration of opportunities open to many LP-Gas dealers during this war period, the North American Utility and Construction Corp., New York City, has obtained several contracts from the Federal Public Housing Authority for defense home installations, according to V. Stark, vice president of the company.

Prior to this year North American Utility and Construction had completed propane gas installations for the defense housing projects at Knox, Ind., in 200 houses; at Walkerton, Ind., in 200 houses, and at Newton Falls, Ohio, in 350 houses, for cooking and water heating. And during 1942 similar services have been accorded housing groups in Bristol, Conn., totaling 200 houses, and a like number in Middletown, Conn. Propane gas systems are at present being installed in two defense housing projects in Charleston, S. C., one for 2000 houses, and another for 410 dwellings. The company has also been granted the contracts for the propane installations in 1100 Groton, Conn., houses, 250 New Britain, Conn., houses and 200 defense homes in Plainville,



The Knox, Ind., 14,000-gal. bulk plant of the North American Utility & Construction Corp., of New York City.

Conn. Mr. Stark's company will supply the gas when the projects are completed.

All the propane gas installations being made by North American Utility and Construction use an "accumulator" system installed by Mr. Stark. A central storage tank supplies gas at 15 lbs. pressure to gas "accumulators," strategically located, to service groups of houses. The pressure is dropped at these accumulators to 12 in. water column and the gas is supplied by pipe lines to different house units. The gas in the accumulators takes care of the peak loads so that the sizes of pipes to these accumulators are calculated only for the average gas consumption and not for the peak load hours consumption.

The accumulators also guarantee uninterrupted service because if repairs are necessary in the distribution system the gas from these accumulators can supply the appliances connected.

The gas is supplied to the various housing units either by tank cars or by truck. North American Utility and Construction Corp. uses a tractor with semi-trailer and 3300-gal. tanks in its supplying service, particularly in the Connecticut projects.

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Natural and Manufactured Gas Further Restricted by WPB

Faced with possible gas shortages in many parts of the country this winter, the War Production Board on Nov. 13 tightened control over the delivery of natural and manufactured gas by revising Limitation Order L-31, governing natural and mixed gas, and Limitation Order L-174, governing manufactured gas.

Restrictions on new deliveries of natural gas to non-residential customers are made nationwide. Previously the restrictions were limited to certain states. Nov. 30 is set as the deadline date for the installation of equipment which may be served in the new territories which have been added to the order.

In the case of residential customers, the prohibition against new gas deliveries will apply after Nov. 30 to all gas heating equipment. Heretofore this prohibition did not affect small unit heaters supplying less than 50% of the heating requirements of the premises. In addition, the areas covered by the residential restrictions of the order have been enlarged to include portions of Arizona and New Mexico.

L-174, which governs the production and distribution of manufactured gas, has been amended to conform closely to the new provisions of the natural gas order. The principal change is to prohibit the installation of gas equipment in cases where delivery of gas to such equipment is prohibited under the order. In addition, the amendment provides for the submission to WPB of curtailment schedules in advance of anticipated shortages.

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Robertshaw Issues Booklet On Gas Cooking Controls

Helpful information about the advantages, economics and operation of thermostatic controls for commercial cooking equipment is contained in a new 18-page, illustrated booklet just issued by the Robertshaw Thermostat Co. The booklet covers various efficient types of thermostats for a wide range of equipment.

Copies are available free upon request to 30 Church St., New York.

LP-Gases Gain in September Production

THE daily average production of natural gasoline and allied products increased in September, 1942, according to the U. S. Bureau of Mines. This gain, the fifth in succession, brought the average to 9,797,000 gals., which was well above the average of a year ago, but below the high months of January and February, 1942. Increases in Illinois, Oklahoma, and the Panhandle figured prominently in the national gain in September.

The daily average production of liquefied petroleum gas (including liquefied refinery gas) increased from 2,731,000 gals. in August to 2,757,000 gals. in September. Although there was some accumulation in LP-Gas inventories in September, daily average deliveries for general fuel purposes increased substantially over August.

Instructions Issued For Commercial Truck Owners

Copies of the booklets of instructions were sent last month to commercial motor vehicle operators to aid them in filing applications for Certificates of War Necessity under General Order ODT No. 21. One set of instructions is for operators of one or two self-powered vehicles, the other for fleet operators (three or more self-powered vehicles).

The booklets are for reference and contain a statement by Joseph B. Eastman, Director of the Office of Defense Transportation, a text of General Order ODT No. 21, a summary of other ODT orders applicable to the program and a reproduction of the application blanks to be filled out by operators, with examples of information to be submitted.

PRODUCTION AND DISTRIBUTION OF LIGHT PRODUCTS IN THE UNITED STATES

(Thousands of gallons)

	Sept.	*Aug.*	*Sept.*
	1942	*1942*	*1941*
STOCKS—FIRST OF MONTH.....	276,948	284,466	256,662
PRODUCTION:			
Natural gasoline	173,250	173,082	
Cycle products	54,978	56,028	
Liquefied petroleum gas:			
Isobutane at natural gasoline and cycle plants	9,324	9,534	296,394
LP-Gas at natural gasoline and cycle plants	56,364	56,532	
Liquefied refinery gas at refineries	17,010	18,606	(1/)
Total supply	587,874	598,228	553,056

(1/) Not available.

"Without Service Your Customer Doesn't Have a Thing!"

By W. O. WEEKS
Manager, Service Department, Modern Gas Co., Marianna, Florida

THE Modern Gas Company, of Marianna, Florida, had a birthday on July 1, 1942. It was four years old. We, here, think it has enjoyed a fine record, growing from 23 to 650 meters in the first three years. And, in order to bring our figures up to January 1, 1942, the company lists a total of 802 meters.

In the months of 1942 expansion has been limited by the Government.

The tonic used to promote this solid, steady growth was good appliances properly installed, a fair price for gas, and the most important ingredient of all—*good service.*

You can sell the best of appliances and receive a moderate price for your gas, but without *service* your customer doesn't have a thing.

Now let me tell you how we give service. Our gas is all metered and we own all our tanks and the gas in the tanks. The customer pays for such gas as the meter registers. The tanks are filled once a month. We encourage customers to learn to read their meters so that at any time they can check their own bills. Result—hardly any kicks on high bills and if one should complain we can easily show them that they were charged for what came through the meter, and then find out for them how it was used. This plan has worked out so satisfactorily that we can refer our prospects to any gas user in our territory, and this has proven our largest business-getter.

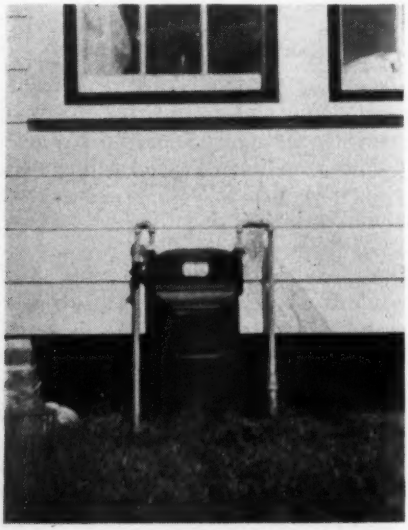
We believe in service! Service with a smile and right now! Service that covers everything from adjusting the range and water heater to teaching the user how to cook. Leaks are attended to at once and adjustments made within 24 hours. This service is free to all of our customers.

Inexperienced Men Preferred

Of course, the quality of any service is determined by the men who are doing the work. We hire young men with reasonable intelligence, preferably those who have never seen a gas appliance before. They become helpers to our older men, and grow up with us. An important phase of our training program is the service meeting. Once a week we get together for 15 minutes to an hour and thrash out unusual things that may come up during routine work. For instance, we may take the conversion of a range from artificial gas to butane for our lesson. Every step is explained carefully while one of the men does the job. We explain why we apply graphite to all of the gas

cocks; drill jumper holes in the oven burner to make it light easier all around; fit the right size orifices to all burners, etc. (And right here let me say that we do not use any brouches for drilling orifices, but use only numbered orifices so that we know what we are using. It takes a good man to ream the four top burner orifices on a range and have any two of them alike.)

Every service meeting brings up new problems and not just one man, but all of them see how to handle them. We encourage arguments and some of them are hot, but good always comes out of them. We teach the men how to act toward customers — to be polite, wear a smile, to be diplomatic in case of a crabby one. The result: Customers calling for Granger, Gunter, Lindsey, Southerland or Conrad to do their work. A doctor or a lawyer builds up a clientele—why not a service man?



Meter showing drip from the butane line on the outlet side of meter. The ¾-in. pipe goes into the ground 4 ft.

Salesmen Attend Service Meetings

Our salesmen are invited to attend these service meetings whenever possible. We may connect up a range, water heater or other appliance and elect one man to explain its features and operation just as if we were an audience who had never seen one before. The salesmen and servicemen recall some things they knew but may have forgotten, and their knowledge of appliances becomes common to all, eliminating the possible contradictory statements which might confuse a customer. Then too, the salesman on his daily calls sees some minor thing wrong, adjusts it while there. And we have a pleased customer!

We also make good use of the manufacturing agents from whom we buy appliances to explain to us the special features of their products.

Without exception, every appliance we sell is put on the test line before it is sent out and carefully checked and put in perfect shape. We have found this profitable in that it reduces service calls to a minimum.

Starting with a new installation, we deliver everything on the job, including appliances, pipe and system, unless one which has already been installed is available for connection. Owning the tanks, we have the privilege of connecting one or more customers to the same one. In fact, we have as many as

12 customers in one block connected onto one 1100-gal. system. For the 650 meters as of last July, we had about 400 tanks in the ground. Every tank is located so that our fill truck can get to it easily, and is installed according to the National Board of Fire Underwriters' Code.

Great Care Used in Installations

The service crew digs the hole and the tank is lowered by means of a tripod and chain hoist. While suspended by the hoist the tank is given two coats of paint, then lowered into the hole without scraping off the paint. The service line is then run to the meter, being buried not less than two feet underground with a fall back to the tank. Drip pipes are installed at the end of the line which is run in ¾ in. and 1 in. galvanized pipe.

Meters are set on the back wall of the house as a rule, although they may be set on either side. A lock cock is installed on the service line at the meter. We are most careful with the installation of all inside piping, dripping it back to the meter. On the outlet side we put in a drip of ¾ in. pipe, sinking it into the ground three or four feet to catch any condensed gas that may form in the line in cold weather. All lateral pipes, copper or galvanized, drop to the main line away from the appliances. As a result of such installation we did not have a single interruption in service last winter even when plenty of ice was in evidence.

Each piping job is tested with air at 30 lbs. pressure. The service line from tank to meter as well as

500-gal. tank, showing vaporizor which is buried 4½ ft., 1 ft. from tank bottom.

all inside pipe is given this test. Once in a while we find a piece of split pipe or a sandhole in a fitting or some other small leak. We use a high quality pipe dope on all joints and later check them with soapsuds. No matches are ever used in checking.

Every time we hear of an accident where gas is involved we call our boys' attention to it and discuss the cause. The result of this is that our men are careful in the use of this gas. Almost every accident which occurs is due to carelessness or poor equipment. The best equipment may cost a little more, but it is worth it in the long run.

We use a 75-25 mixture here and on some installations, especially for large users and on long service runs, we have had some trouble with pressure and B.t.u. changes at different levels in the tank. To over-

come these troubles we installed liquid withdrawal regulators on the Rego head, putting in a dip pipe to the bottom of the tank. We used the No. 477 Rego regulator set at 5 lbs. pressure, and a heat exchanger (which we make ourselves) that is buried 4½ ft. underground near the tank. This is connected to the service line to the building. Before the meter we install a regulator reducing the pressure to 10½-in. water column.

On one service 2000 ft. long with 12 ranges, six automatic water heaters, two Electrolux and 24 space heaters, at the peak load last winter we had no drop in pressure and the B.t.u. content was very satisfactory.

In a peanut roaster equipped with burners controlled by a proportional mixer, we had some trouble when the gas in the tank got low. The lower the gas got the higher the B.t.u. content became, throwing the mixture of gas and air out of proportion. After we installed the liquid withdrawal regulator we have not had one service call in five months.

Liquid Withdrawal Solves Problem

Another example is this 1100-gal. tank with 265 ft. of service line which serves a bakery with revolving oven, two restaurants, and a bus station heating job with eight large Clow Gasteam radiators (a 450,000 B.t.u. draw); pressure and B.t.u. trouble were experienced before we installed the liquid withdrawal, but now after nine months we have not had a single trouble call and the customers have expressed their complete satisfaction.

We now have nine of these in service on tanks ranging from 300- to 1100-gals. capacity and expect to equip other large tanks as soon as possible. The saving to us is one tank to fill instead of two to 12, and service calls reduced to almost none. This equals satisfied customers, too.

For continued growth we're going to rely on our old favorite prescription—good appliances, fair gas price, and plenty of good service.

◆ ◆

Inventories of Tires Required Of Commercial Truck Owners

Applications for Certificates of War Necessity under General Order ODT No. 21 will provide the Office of Defense Transportation with a complete inventory of all tires now on the wheels of the country's more than 5,000,000 non-military commercial vehicles or held for the use of such vehicles.

In applying for a Certificate of War Necessity, every operator must report the number and condition of all tires in his possession by sizes or size groups, including both new and used tires.

In addition, the operator must list the mileage of tires, by sizes, which were removed from service, in 1941, exclusive of retreaded or recapped tires, thus giving the ODT a definite gage on normal consumption of new tires by commercial vehicles.

◆ ◆

Dudley E. Heath, Servel, Inc., Is New Patent Department Head

Dudley E. Health has been named head of the patent department of Servel, Inc., Evansville, Ind., it was announced by Louis Ruthenberg, president of the company.

Mr. Heath replaces William T. Hedlund, resigned and has been assistant to Mr. Hedlund since 1930.

THE BOTTLED GAS MANUAL

Chapter 16

Selecting and Installing The LP-Gas Water Heater

In Two Parts—Part 1

THERE was a time in our American way of living when there were "blue Mondays" and "bath Saturdays." Our modern manner of cleanliness with its several baths each week has driven the latter into oblivion. The washing machine, ironer, and automatic water heater have taken the "blue" out of Monday, but as the national family laundry day it still exists. Perhaps it may not be Monday in your home, but there is one day in the week that is known as "wash day," and unless you are sticking to the hoary custom of taking a bath once a week "whether you need it or not" it is the day of greatest demand upon the water heater.

The water heating system must be sized so as to take care of this day of maximum demands, and at the same time not "eat its head off" in the way of stack and stand-by losses. In Chapter 14 we learned something of the amount and temperature of water required for each common domestic usage, and our first step is to make use of this information in determining just how much hot water must be delivered each hour of the day. We can best do this by using some such form as that suggested for use in Table 1. The highest temperature for which the water heater should be set is naturally that of the usage requiring the highest heat level, and other usages must be adjusted in our estimate by reference to the table, "Percentages of Hot and Cold Water to Obtain Desired Temperatures of Tempered Water," in Chapter 14.

Making the Demand Analysis. You will note that in the form "Water Heating Analysis" (Table 1), we give first consideration in Section 1, to an analysis of the inmates. Let us for a moment turn back to Chapter 14 wherein we have listed the eight variables which govern the amount of hot water used in a home. In Section 1 we place in visible form the answers to seven of these variables in the particular application which we are considering, and our decision as to whether or not the family will use hot water sparingly, moderately, or excessively must be based upon these facts. A slovenly household does not necessarily mean that its inhabitants will use hot water sparingly, in fact, it is quite pos-

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• The Bottled Gas Manual series by C. C. Turner, started in the July, 1941, issue of BUTANE-PROPANE *News* and will continue to be published monthly in chapter form until completed. This series constitutes a valuable text book and field manual that should be invaluable to everyone in the liquefied petroleum gas industry.—*Editor.*

TABLE 1. WATER HEATING ANALYSIS

Name..... *Address*.....

Section 1. Analysis of Inmates.

Adult members of family.....☐
Servants .....☐
Paying residents .....☐
Children .....☐
TOTAL RESIDENTS .....☐
Allowance for servants and children .....☐
TOTAL RESIDENTS AS BASIS FOR FIGURING .....☐

Occupation of those employed .....
Do they entertain occasionally..☐
moderately? ...☐
frequently? ...☐
Is there chronic disease in the family? .....

On basis of above I estimate that these people will use hot water sparingly.....moderately.....excessively.....

Section 2. Analysis of Water Conditions

The water is.....hard ☐
soft ☐
The water is ....alkaline ☐
acid ☐
neutral ☐

Temperature of incoming cold water ☐
Temperature desired 6 days per week ☐
Temperature desired 1 day per week ☐
Temperature rise 6 days per week.. ☐
Temperature rise 1 day per week... ☐

On the basis of above chemical and temperature conditions I suggest that the storage tanks be made of.....metal.

Section 3. Quantity Corrections for Usage Habits and Temperature Differentials.

	Tempered Water		*Temperature Differentials*		*Actual Gallons of Hot Water for Each Usage*	
Purpose of Usage	*Gallons Each Operation*	*Temperature of Tempered Water*	*6 Days*	*1 Day*	*6 Days*	*1 Day*
Tub bath	.....	.....	.....	.....	.....	.....
Shower bath	.....	.....	.....	.....	.....	.....
Sponge bath	.....	.....	.....	.....	.....	.....
Needle spray	.....	.....	.....	.....	.....	.....
Baby bath	.....	.....	.....	.....	.....	.....
Face and hands....	.....	.....	.....	.....	.....	.....
Lathering & shaving	.....	.....	.....	.....	.....	.....
Hot towels—shaving	.....	.....	.....	.....	.....	.....
Shampoo, man	.....	.....	.....	.....	.....	.....
Shampoo, woman ..	.....	.....	.....	.....	.....	.....
Washing lingerie ..	.....	.....	.....	.....	.....	.....
Mopping floors	.....	.....	.....	.....	.....	.....
Dishes, meal/person	.....	.....	.....	.....	.....	.....
Rinsing dishes, ditto	.....	.....	.....	.....	.....	.....
Scalding dishes, ditto	.....	.....	.....	.....	.....	.....
Laundry, per person	.....	.....	.....	.....	.....	.....
Rinsing laundry, ditto	.....	.....	.....	.....	.....	.....

TABLE 1. ***(Continued)***

Section 4. Actual Usage of Untempered Water per Hour 6 Days per Week on Basis Section 3

Morning							*Afternoon*						*Evening*						*Night*			
6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4

Section 5. Actual Usage of Untempered Water per Hour 1 Day per Week on Basis Section 3

Morning							*Afternoon*						*Evening*						*Night*			
6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4

I believe the above to be a fair analysis of conditions to be met in taking care of the above named party's hot water requirements.

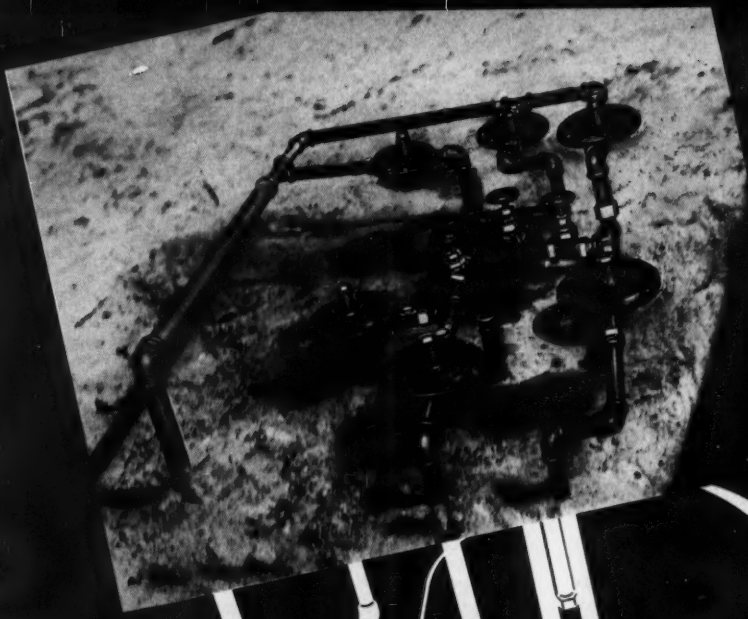
Analyst.

sible that there might be excessive usage. I recall one such instance where the head of the family was too lazy to build a fire on cool mornings and heated the bathroom for dressing and shaving by drawing a tub full or hot water!

Upon our decision as to whether the family will use water sparingly, moderately or excessively depends the manner in which we shall apply the "Table of Hot Water Usages Within Customary Limitations," which also appears in Chapter 14. If our decision is that the family will use hot water sparingly we will use in making our calculations the quantities listed as "Minimum." If we decide that the usage will be excessive we will use those quantities listed as "Maximum." If the usage wil be moderate we strike an average between the "Minimum" and "Maximum" quantity limitations.

In Section 2 (Table 1) we make a careful analysis of water conditions. We should not do any guessing here, or take anyone's word for anything. To determine whether the water is hard or soft we should actually make a soap test. Select some standard brand of soap for this test and always have a bar of it with you so that you can determine the softness of the water in relation to other water heating jobs that you have tackled. Dishes in which water is boiled should be carefully observed, and the presence of any appreciable amount of deposit or scale within them is an almost certain indication of hard water. These two tests are important, for if the water is hard more hot water will be used for each operation, and you will wish to make allowance accordingly in application of the "Table of Hot Water Usages Within Customary Limitations."

The next step under Section 2 is an extremely important one. No one should even consider the installation of a water heater without first checking upon the temperature of the incoming water. There is but one way to do this, and that is with a thermometer. *Don't guess at this.* Take an actual thermometer read-



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BUY WAR BONDS
FOR VICTORY

PING TO SPEED *Victory*

The installation at the left is one of many helping to win the war. It was made by Green's Fuel of Florida at an important airfield where our aviation cadets are trained. A large underground tank supplies LP Gas. No other fuel would do the job as well in this locality.

Alert members of the industry all over the country are overcoming the shortage of heat and power by utilizing surplus LP Gases to meet the demands of the Army and Navy. These gases, controlled by RegO equipment, are used in camps, flying fields, naval training stations, war production plants, etc. They are a clean, quick and efficient fuel and help to conserve other fuels that are critical.

Members of the industry who will apply LP Gases to the war effort where these can serve economically will be helping to speed Victory.

Insure perfect performance and economy by insisting on genuine Bastian-Blessing products identified by the RegO trademark.

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ing, and be sure that you allow the water to run for a minute or two before taking the reading. Don't hold the thermometer in the stream of water as it comes from the faucet, for heat from your hand will affect the reading. It is best to have a quart glass jar beneath the stream of water and insert the thermometer in it in such a way that you can take the reading without having to touch it.

Determine "Carrying Temperature"

At this point it will be necessary for you to also determine what the carrying temperature is to be. You will note that in the analysis sheet there is a provision for two such temperatures under the headings "Temperature desired .. days per week." These have been filled in for "6" and "1" days respectively, for this is the common practice, but if there are to be two or more days of heavy demand in the week these figures should be changed accordingly. Consulting Chapter 14 again we find that 170° Fahrenheit was decided upon as the correct temperature for wash days, and 145° for the other six days of the week, and unless there are unusual conditions we should plan upon these two settings. *This is the proper time to sell the prospective customer on the idea of setting up the thermostat on wash days and setting it back at other times.*

The "Temperature rise .. days per week" is arrived at by deducting the "Temperature of incoming cold water" from "Temperature desired .. days per week." We shall have need of this information in Section 3, and also when we come to the actual selection of the water heater.

In Section 3 we establish the actual basis of our selection of the proper water heater. Under the heading "Tempered Water" is a column "Gallons Each Operation" and here we should fill in the quantities decided upon in view of the information which we have previously developed in Sections 1 and 2. If the demand is to be sparing, we fill in the values given under "Minimum" in the "Table of Hot Water Usages Within Customary Limitations." If the use is to be excessive we use the "Maximum" values from this same table, and if there will be a moderate use we strike an average between these two columns.

Under "Temperature of Tempered Water" we fill in the "Usual Temperature" values taken from this same table, unless we have some good reason for varying these figures.

The information under "Temperature Differentials" is the difference between the "Temperature desired .. days per week" and the "Temperature of Tempered Water." By way of example, if we have decided that the temperature of tempered water for a bath be 108° and we are carrying a hot water temperature of 145° for six days in the week and 170° for one day, then the temperature differential would be $145 - 108 = 37°$ for six days and $170 - 108 = 62°$ for one day.

We next come to the heading "Actual Gallons of Hot Water for Each Usage." It is obvious that if 15 gals. of 108° water is required

for a bath, and the carrying temperature of the hot water is 145°, not all of the 15 gals. of 108° water will be drawn through the water heater. Let us assume a "Temperature of incoming cold water" as 45° and turn to the table of "Percentages of Hot and Cold Water Required to Obtain Desired Temperatures of Tempered Water" in Chapter 14. The "Degrees Temperature Between Hot and Cold Supply" are 145 — 45 = 100°. The difference between the carrying temperature and the temperature of the tempered water is 145 — 108 = 37°. We follow down the "Degrees Temperature Between Hot and Cold Supply" column until we come to 100°, then we follow across this line until we come to the nearest or next lower figure to 37, which happens to be 35. Following up this column we arrive at an approximate percentage of 65, therefore only 65%, or .65 × 13 = 8.45 gals., of hot water will be drawn from the water heater to give us 13 gals. of 108° water.

Let us see what the picture would be on the day that we are carrying the water in the water heater at 170°. The "Temperature Differential" on this one day is 170 — 108 = 62°. Following over on the same 100° line mentioned above we find the nearest figure to 62 to be 60 and following up this column we find that only 40% or .40 × 13 = 5.2 gals. of hot water will be drawn from the water heater to give us 13 gals. of 108° water on this day.

Now that we have established the actual demand upon the water heater for each individual operation we are in a position to make an anlysis of the actual hourly demand upon the water heater. For this purpose we use another form (Table 2) known as the "Hourly Hot Water Demand" form. This form is identical upon both sides, one side being used for the six-day demand and the other side for "wash day" demand. Here it is necessary to tactfully inquire into the personal habits of each member of the family, and tabulate the demand upon the water heater for each hour of the day. In making this tabulation we use the values established in the "Actual Gallons of Hot Water for Each Usage" column in Section 3 of the "Water Heating Analysis." After we have totalled the demand for each hour on the "Hourly Hot Water Demand" sheet we copy the results into Sections 4 and 5 of the "Water Heating Analysis."

Selecting the Proper Water Heater. The time has now come when we must select the proper water heater for the job. It is obvious that the number of gallons of hot water in storage at the beginning of each hour plus the recovery of the water heater in gallons per hour must at least be equal to the demand upon the water heater in any one hour with a reasonable amount of excessive capacity to spare as a factor of safety. We should also keep the storage capacity and recovery rate as low as possible in order to avoid excessive heat losses through radiation and high stack temperatures. We will have losses through the cooling off of water in the hot water pipe lines.

To cover these pipe line losses and provide a reasonable factor of safety the combined storage capacity and recovery rate should be at least 20% in excess of the greatest hourly demand upon the water heater.

Let us take a typical example in which the demand happens to be 20 gals. of 100° rise water in an hour. At the end of the hour we should have a theoretical reserve of 20% of 20 gals., or 4 gals. of hot water, and this 4 gals. of hot water plus recovery rate of water heater must be 20% in excess of the demand upon the heater in the following hour. In this particular case we must start with a combined storage capacity and recovery rate of 24 gals. of hot water. Let us assume a storage tank of 20 gals. capacity and a recovery rate of 4 gals. of 100° rise water per hour. In our second hour we would have 4 gals. in storage plus 4 gals. recovery, or 8 gals. on which to draw. If we are to maintain our factor of safety we could only use 8 gals. less 16-2/3%* or 6-2/3 gals. This would leave us with only a reserve of 1-1/3 gals. with which to start

* In figuring percentages 16⅔% "off" is the same as 20% "on".

TABLE 2. HOURLY HOT WATER DEMAND

Name.....*Address*.....

Actual Demand on Water Heater for
Days per Week Water Temperature °Fahrenheit

Actual Demand in Gallons for Each Preceding Hour

Purpose of Usage	*Morning*							*Afternoon*							*Evening*							*Night*				
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
Tub bath																								
Shower bath																								
Sponge bath																								
Needle spray																								
Baby bath																								
Face & hands																								
Lathering & shaving																								
Hot towels—shaving																								
Shampoo—man																								
Shampoo—woman																								
Washing lingerie																								
Mopping floors																								
Dishes, meal/person																								
Rinsing dishes, ditto																								
Scalding dishes, ditto																								
Laundry, per person																								
Rinsing laundry, ditto																								
TOTALS																								

Actual demand for other days in week will be found on the reverse side of this sheet.

the next hour, which obviously is not enough. We would have to either increase the storage capacity or the recovery rate.

A liberal supply of the forms entitled "Water Heater Selection Analysis" (Table 3) should be available. These can be mimeographed on cheap paper, for several of them will be required in all probability on each water heating survey before the selection of the correct water heater is made.

At this point let me caution you in reference to taking the manufacturer's rated recovery as the basis of your calculations. I can best explain the reason for this warning by reference to the "Correctional Chart for Manufacturer's Ratings

TABLE 3. WATER HEATER SELECTION ANALYSIS

Name.....

Actual Demand on Water Heater for....Days per Week | **Water Temperature Desired.....°F.** | **Temperature Rise.....°F.**

Make of Water Heater Being Considered..... | *Manufacturer's Model Number*.....

Storage Capacity..... | *Rated Recovery in Gallons per Hour*..... | *Temperature at Which Mfr's Rating Made*.....

Corrected Recovery in Gallons Per Hour for Desired Temperature Rise..... | **Combined Storage Capacity and Corrected Recovery**.....

Reserve at End of Hour Should Be (16⅔% of preceding number gals.).....

The Following Values Are for the Preceding Hour

	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
Gallons of hot water storage at beginning of hour*																								
Actual corrected number of gallons recovery in an hour.....																								
Total number of gallons of hot water available for the hour**.....																								
Gallons of demand for the hour***....																								
Gallons of hot water left in storage tank at end of hour****.....																								

* This cannot be in excess of the capacity of the storage tank.

** This is the total of the two figures above.

*** This is taken from Sections 4 and 5 of "Water Heating Analysis."

**** This is the difference between the two figures immediately above. It is carried forward as the value for "Gallons of Hot Water Storage at Beginning of Hour" in the succeeding column, providing however, that if it is in excess of the storage capacity of the tank, then only the Storage Capacity of the Tank can be put down as the value of "Gallons of Hot Water Storage at Beginning of Hour."

On the basis of the above calculations the heater mentioned above WILL (NOT) be satisfactory.

Analyst.

TABLE 4. CORRECTIONAL CHART FOR MANUFACTURERS' RATINGS OF GAS FIRED WATER HEATERS

Burner Input	% Efficiency	Effective B.t.u.	Degrees of Temperature Rise											
			60	70	80	90	100	110	120	130	140	150	160	170
			Recovery in Gals. per Hr. for Above Number Degrees Temperature Rise											
2,500	50	1,250	2.45	2.14	1.87	1.66	1.50	1.36	1.25	1.15	1.07	1.00	.94	.88
	60	1,500	2.94	2.57	2.25	2.00	1.80	1.63	1.50	1.38	1.28	1.20	1.12	1.05
	70	1,750	3.43	3.00	2.62	2.33	2.10	1.90	1.75	1.61	1.50	1.40	1.31	1.23
	80	2,000	3.90	3.42	3.00	2.66	2.40	2.18	2.00	1.84	1.71	1.60	1.50	1.41
	90	2,250	4.41	3.85	3.37	3.00	2.70	2.45	2.25	2.07	1.92	1 80	1.68	1.58
5,000	50	2,500	4.90	4.28	3.74	3.33	3.00	2.72	2.50	2.30	2.14	2.00	1.87	1.76
	60	3,000	5 88	5.14	4.50	4.00	3.60	3.26	3.00	2.76	2.56	2 40	2.24	2.10
	70	3,500	6.86	6.00	5.24	4.66	4.20	3.80	3.50	3.22	3.00	2.80	2.62	2 46
	80	4,000	7.84	6.84	6 00	5.33	4.80	4.36	4.00	3.68	3.43	3 20	3.00	2.82
	90	4,500	8.82	7.70	6.74	6.00	5.40	4.90	4.50	4.14	3.84	3.60	3.36	3 16
7,500	50	3,750	7.33	6.42	5.61	5.00	4.50	4.08	3.75	3.45	3.21	3 00	2.81	2.65
	60	4,500	8.82	7.70	6.75	6.00	5.40	4.89	4.50	4.14	3.84	3.60	3.36	3 15
	70	5,250	10.29	9.00	7.86	7.00	6.30	5.70	5.25	4.83	4.50	4 20	3.93	3.69
	80	6,000	11.76	10.26	9.00	8.00	7.20	6.54	6.00	5.52	5.13	4.80	4.50	4 23
	90	6,750	13.23	11.57	10.11	9.00	8.10	7.35	6.75	6.21	5.76	5 40	5.04	4.74
10,000	50	5,000	9.80	8.56	7.48	6.66	6.00	5.44	5.00	4.60	4.28	4.00	3.75	3 53
	60	6,000	11.76	10.28	9.00	8.00	7.20	6.52	6.00	5.52	5.12	4.80	4.48	4.20
	70	7,000	13.72	12.00	10.48	9.33	8.40	7.60	7.00	6.44	6.00	5.60	5.24	4 92
	80	8,000	15.68	13.68	12.00	10.66	9.60	8.72	8.00	7.36	6 84	6 40	6.00	5.64
	90	9,000	17.65	15.40	13.48	12.00	10 80	9.80	9.00	8.28	7.68	7.20	6.72	6 32
12,500	50	6,250	12.25	10.70	9.35	8.33	7.50	6.80	6.25	5.75	5 35	5.00	4.68	4.41
	60	7,500	14.70	12.85	11.25	10.00	9.00	8.15	7.50	6.90	6.40	6.00	5.60	5 25
	70	8,750	17.15	15.00	13.10	11.66	10.50	9.50	8.75	8.05	7.50	7 00	6.55	6.15
	80	10,000	19.60	17.10	15.00	13.33	12.00	10.90	10 00	9.20	8.55	8.00	7.50	7 05
	90	11,250	22 05	19.25	16 85	15 00	13.50	12.25	11.25	10.35	9 60	9 00	8.40	7.90
15,000	50	7,500	14.70	12.84	11.22	10.00	9.00	8.16	7.50	6.90	6.42	6.00	5.62	5.29
	60	9,000	17.64	15.42	13.50	12.00	10.80	9.78	9.00	8.28	7.63	7 20	6.72	6.30
	70	10,500	20.58	18.00	15.72	14.00	12.60	11.40	10.50	9.66	9.00	8.40	7.86	7 38
	80	12,000	23.52	20.52	18.00	16 00	14.40	13.08	12.00	11.04	10.26	9 60	9.00	8.46
	90	13,500	26.47	23.10	20.22	18 00	16.20	14.70	13.50	12.42	11.52	10.80	10.08	9 48
17,500	50	8,750	17.15	14.98	13.09	11.66	10.50	9.52	8.75	8.05	7.49	7 00	6.56	6.17
	60	10,500	20.58	17.99	15.75	14.00	12.60	11.41	10.50	9.66	8.96	8.40	7.84	7 35
	70	12,250	24.01	21.00	18 34	16.33	14.70	13.30	12.25	11.27	10.50	9.80	9.17	8 61
	80	14,000	27.45	23.94	21.00	18.66	16.80	15.26	14.00	12.88	11.97	11.20	10.50	9 87
	90	15,750	30.88	26.95	23.59	21.00	18.90	17.15	15.75	14.49	13.44	12 60	11.76	11.06
20,000	50	10,000	19.60	17.12	14.96	13.33	12.00	10.88	10.00	9.20	8.56	8 00	7.49	7.06
	60	12,000	23.50	20.56	18.00	16.00	14.40	13.04	12 00	11.04	10.24	9.60	8.96	8 40
	70	14,000	27.45	24.00	20.96	18.66	16 80	15.20	14.00	12.88	12.00	11 20	10.48	9.84
	80	16,000	31.57	27.36	24.00	21.33	19.20	17.44	16.00	14.72	13.68	12 80	12.00	11.28
	90	18,000	35.29	30.80	26.96	24.00	21.60	19.60	18 00	16.56	15.36	14.40	13.44	12 64
22,500	50	11,250	22.05	19.26	16.83	15.00	13.50	12.24	11.25	10.35	9.63	9 00	8 43	7.94
	60	13,500	26.47	23.13	20.25	18.00	16.20	14.67	13.50	12.42	11.52	10.80	10.08	9 45
	70	15,750	30.88	27.00	23.58	21.00	18.90	17.10	15.75	14.49	13.50	12 60	11.79	11.07
	80	18,000	35.29	30.78	27.00	24.00	21.60	19.62	18 00	16.56	15.39	14.40	13.50	12 69
	90	20.250	39.70	34.65	30.33	27.00	24.30	22.05	20.25	18.63	17.28	16 20	15.12	14.22
25,000	50	12,500	24.50	21.40	18.70	16.66	15.00	13.60	12.50	11.50	10.70	10.00	9.37	8 82
	60	15,000	29.40	25.70	22.50	20.00	18.00	16.30	15.00	13.80	12.80	12 00	11.20	10.50
	70	17,500	34.30	30.00	26.20	23.33	21.00	19.00	17.50	16.10	15.00	14.00	13.10	12 30
	80	20,000	39.20	34.20	30.00	26.66	24.00	21.80	20.00	18.40	17.10	16 00	15 00	14.10
	90	22,500	44.10	38.50	33.70	30.00	27.00	24.50	22.50	20.70	19.20	18.00	16.80	15 80
27,500	50	13,750	26.96	23.54	20.57	18 33	16.50	14.96	13.75	12.65	11.77	11 00	10 31	9.70
	60	16,500	32.35	28.27	24.75	22.00	19.80	17.93	16.50	15.18	14.08	13.20	12.32	11 55
	70	19,250	37.74	33.00	28.82	25.66	23.10	20.90	19.25	17.71	16.50	15 40	14.41	13.53
	80	22,000	43.13	37.62	33.06	29.33	26.40	23.98	22.00	20.24	18.81	17.60	16.50	15 51
	90	24,750	48.52	42.35	37.07	33.00	29.70	26.95	24.75	22.77	21.12	19 80	18 48	17.38
30,000	50	15,000	29.40	25.68	22.44	20.00	18.00	16.32	15.00	13.80	12.84	12.00	11.24	10 58
	60	18,000	35.29	30.84	27.00	24.00	21.60	19 56	18.00	16.56	15.36	14 40	13.44	12.60
	70	21,000	41.16	36.00	31.44	28.00	25.20	22.80	21.00	19.32	18.00	16.80	15.72	14 76
	80	24,000	47.04	41.04	36.00	32 00	28.80	26.16	24.00	22.08	20.52	19 20	18 00	16.92
	90	27,000	52.94	46.20	40.44	36.00	32.40	29.40	27.00	24.84	23.04	21.60	20.16	18 96

CORRECTIONAL CHART FOR MANUFACTURERS' RATINGS OF GAS FIRED WATER HEATERS

TABLE 4—*Continued*

Burner Input	% Efficiency	Effective B.t.u.	Degrees of Temperature Rise											
			60	70	80	90	100	110	120	130	140	150	160	170
			Recovery in Gals. per Hr. for Above Number Degrees Temperature Rise											
32,500	50	16,250	31.86	27.82	24.31	21.66	19.50	17.68	16.25	14.95	13.91	13.00	12.18	11.47
	60	19 500	38.23	33.41	29.25	26.00	23.40	21.19	19.50	17.94	16.64	15.60	14.56	13 65
	70	22,750	44.60	39.00	34.06	30.33	27.30	24.70	22.75	20.93	19.50	18 20	17.03	15.99
	80	26,000	50.98	44.46	39.00	34.66	31.20	28.34	26.00	23.92	22.23	20.80	19.50	18.33
	90	29,250	57.35	50.05	43.81	39.00	35.10	31.85	29.25	26.91	24.96	23 40	21.84	20.54
35,000	50	17,500	34.30	29.96	26.18	23.33	21.00	19.04	17.50	16.10	14.98	14.00	13.12	12 35
	60	21,000	41.16	35.93	31.50	28.00	25 20	22.82	21.00	19.32	17.92	16 80	15.68	14.70
	70	24,500	48.02	42.00	36.68	32.66	29.40	26.60	24.50	22.54	21.00	19.60	18.34	17 22
	80	28,000	54.90	47.°8	42.00	37.33	33.60	30 52	28.00	25.76	23.94	22 40	21.00	19.74
	90	31.500	61.76	53.90	47 18	42.00	37.°0	34.30	31.50	28 98	26 88	25.20	23 52	22 12
37,500	50	18,750	36.76	32.10	28.05	25.00	22.50	20.40	18.75	17.25	16.05	15.00	14.05	13.23
	60	22.500	44.11	38.55	33.75	30.00	27.00	24.45	22.50	20.70	19.20	18.00	16.80	15 75
	70	26,250	51.47	45.00	39.30	35.00	31.50	28.50	26.25	24.15	22.50	21 00	19 65	18.45
	80	30,000	58.82	51.30	45 00	40.00	36.00	32.70	30.00	27.60	25.65	24.00	22.50	21.15
	90	33,750	66.17	57.75	50.55	45.00	40 50	36.75	33.75	31.05	28.80	27 00	25.20	23.70
40.000	50	20,000	39.20	34.24	29.92	26.66	24.00	21.76	20.00	18.40	17.12	16.00	14.99	14 11
	60	24,000	47.00	41.12	36.00	32.00	28.80	26.08	24.00	22.08	20.48	19 20	17.92	16.80
	70	28,000	54.90	48.00	41 92	37.33	33.60	30.40	28.00	25.76	24.00	22.40	20.96	19 68
	80	32,000	62.74	54.72	48.00	42.66	38.40	34.88	32.00	29.44	27.36	25 60	24.00	22.56
	90	36,000	70.58	61.60	53.92	48.00	43.20	39.20	36.00	33.12	30.72	28.80	26.88	25.28

of Water Heaters," or Table 4. Let us take a typical water heater of 5000 B.t.u. input which is rated by a certain manufacturer as having a recovery of 7 gals. per hour of 60° rise water. Following down the 60 "Degrees of Temperature Rise" column we come to 6.86 gals. in the 5000 B.t.u. input classification. Incidentally the efficiency of this heater is slightly over 70%, as will be noted. If we have a job where the degrees of temperature rise are 100 this heater would be good for only 3.60 gals, recovery per hour—not 6.86 gals., and in making our selection of a water heater we must use the actual recovery rate for the temperature rise with which we are confronted, *not* the rated recovery of the manufacturer at a different number of degrees temperature rise.

We could go on with innumerable considerations of varying conditions, but the best way to become thoroughly familiar with this system of determining the proper water heater is to make up several forms like those suggested and use them on a few water heating surveys. At first this system may seem a bit complicated, but as you become well versed in it each step will automatically follow in its proper sequence. Keep all of the papers pertaining to each survey clipped together and filed for future reference.

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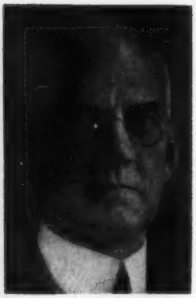
(Part 2 of Chapter 16 of The Bottled Gas Manual will be published in the January issue of BUTANE-PROPANE *News. It will contain the Questions and Answers for the entire chapter.—Editor.)*

Francis H. Payne, American Meter Co., Passes Away

Francis Hervey Payne, president of American Meter Co., and manager of the corporation's Metric Metal Works plant at Erie, Pa., died suddenly Nov. 10, while attending the monthly meeting of the Men's Club at St. Paul's Church, Erie, Pa. He was in his 75th year.



F. H. PAYNE

Mr. Payne was born April 1, 1868, at Petroleum Center, Venango county, Pa., where his father, the late Calvin N. Payne, was engaged in drilling for oil and built the first natural gas pipe line in America.

Francis Payne was a graduate of the Titusville high school, the Hill School of Pottstown, Pa., and of Princeton University, Class of 1891.

His advent in the gas meter business was in July, 1891, when he became secretary and manager of the Metric Metal Co. then at Beaver Falls, Pa.

Mr. Payne enjoyed an unbroken record of almost 52 years as manager of this important operating factory, which became a part of American Meter Co. when that company was organized in 1895.

He was a director of this corporation for many years prior to his election as vice president in 1923, and as president in June, 1936.

Mr. Payne had an active interest in the civic affairs of his home community, and at the time of his death, he was a Director of the American Gas Association.

On the occasion of Mr. Payne's 50 years of service with American Meter Co. on June 20, 1941, a testimonial dinner was tendered him at the Kahkwa Club in Erie by the directors, officers and company members.

Important manufacturing history in the measurement of gas and oil was made during Mr. Payne's many years of management of the Metric Metal Works plant. In 1891, tinned steelcase gas meters, extensively used throughout the United States since 1836, were first made from dies. High pressure ironcase meters were also developed and improved from 1888 until the present. In 1916, Ballard Westcott orifice meters were developed. This principle of orifice measurement is extensively used in recording the large volume of gases and liquids in the gas and petro-chemical industries.

Mr. Payne is survived by his widow, Mrs. Myra Lee Payne, and two sons, F. Dana Payne and Calvin N. Payne, II, also by a sister, Mrs. Axtell J. Byles, and a brother, Christy Payne, who, before his retirement, was treasurer of the Standard Oil Co. of N.J.

◆ ◆

Production of Cast Iron Boilers Prohibited by WPB

Production of low pressure cast iron boilers built to use exclusively oil or exclusively gas for fuel is prohibited Dec. 1 by the War Production Board. Production of other cast iron boilers is prohibited unless they are used for essential purposes.

The order, L-187, defines a low pressure cast iron boiler as one designed for hot water or steam heating operated at a maximum working pressure of 15 lbs. per sq. in. for steam, or 30 lbs. per sq. in. for water.

This type of boiler is widely used both for industrial and domestic heating plants.

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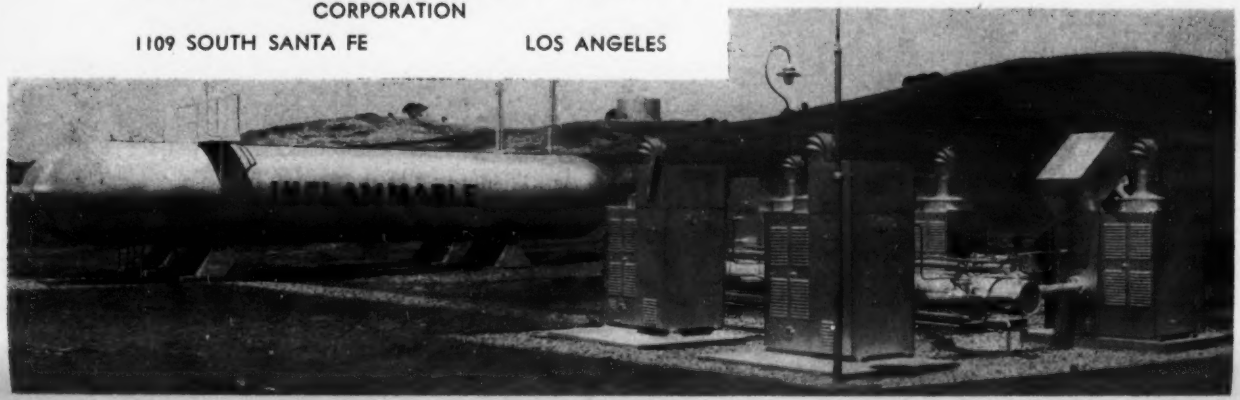

Thanks A LOT!

"It's a real pleasure nowadays to be able to get what you order quickly out of stock. The last shipment of Ransome torches you sent us sold like hot cakes. The mechanics in the war plants and shipyards like them, and they net us a good margin of profit." That is the kind of a reception the Ransome man is getting from dealers everywhere, so if you need torches, remember we have them—not on a drawing board—but in the bin, ready for shipment.

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RESEARCH

• **EACH MONTH a competent staff reviews more than 70 publications serving the oil, gas and affiliated industries in a search for those published articles of value to technicians and executives in the liquefied petroleum gas industry. In this department of** BUTANE-PROPANE *News*, **brief abstracts of such articles are presented.—Editor.**

New Process for Catalytic Conversion of Normal Butane into Isobutane. *National Petroleum News*, June 10, 1942, pp. R194, 195. Further means for increasing the supply of high-octane aviation gasoline from the C_4 hydrocarbons in natural and refinery gases is said to be embodied in the process recently announced by Universal Oil Products Co. for the isomerization o fnormal butane into isobutane. Yields from butane are said to be 60 to 65% of the more desirable isobutane for further processing as a source of gasoline. This process is described.

Diversity of Coastal Plants Invites Chemical Affiliation—H. S. Norman. *Oil and Gas Journal*, June 25, 1942, pp. 170, etc. Accoutrements of the Gulf Coast refining district are analyzed in this article. Flexibility of processing facilities and selectivity of crudes are two of the keys coastal refiners are using to open obscure doors to the intricacies of petroleum-hydrocarbon chemistry. Nearly 40 refineries in the district have combined capacity of 1,206,000 bbl. daily, approximately 30% of the nation's total. Each of six particularly large coastal plants have capacity of more than 100,000 bbl. daily, and one or two are rated as 200,000 bbl. Coastal refineries are the nerve center of the country's most extensive pipe-line network, delivering crudes from fields throughout the Southwest.

Prevention of Fires, Explosions, and Accidents from Flammable Liquids—G. M. Kintz. *Petroleum Engineer*, June, 1942, pp. 77, etc. Part 1. Information on fires, explosions and especially flame propogation in industries handling flammable fluids such as petroleum products.

Liquid - Liquid Extraction Data. Partial Pressures of Ternary Liquid Systems and the Prediction of Tie Lines—D. F. Othmer and P. E. Tobias. *Industrial and Engineering Chemistry*, June, 1942, pp. 696-700. An equation is derived, relating the partial pressure of the solute in a ternary solubility system to the composition of the mixture. Through the use of this equation, of solubility data, and of partial pressure data for the two binary system A-C and B-C, the tie lines of ternary systems may be predicted. Less accurately, partial pressure data alone yield an index which may be used to determine approximately the distribution characteristics of a solvent to be employed in a solvent-extraction system. Where partial pressure data are not available, they may be approximated by and the log plot for vapor pressures previously described.

Liquid-Liquid Extraction in a Perforated Plate Tower—R. E. Treybal and F. E. Dumoulin. *Industrial and Engineering Chemistry*, June, 1942,

pp. 709-713. Liquid extractions of toluens-benzoic acid solutions by means of water were carried out in a perforated plat tower, toluene solutions dispersed. Operating characteristics of the tower are discussed, and data are reported for rates of extraction at various flow rates and at plate spacings of 3, 6, and 9 in.

The results are compared with previous similar data and show an improvement with respect to allowable solvent flow rates as well as $(H.T.U.)_{ow}$. $(H.T.U.)_{w}$ values are similar to those previously reported. Kwa values for 3-inch spacings are affected by both solvent rates, but for 6 and 9-in. spacings are independent of water rate over the range of flows studied.

How to Get the Most Out of Diesel and Gas Engines—L. N. Rowley. *Power*, June, 1942, pp. 99-102. High efficiency and accurate ratings characteristic of modern engines and accessories put emphasis on intelligent operation and maintenance to realize the full capacity built into the equipment. A check list for operators is given, with suggestions for increasing capacity in some cases.

Thermofor Catalytic Cracking Process Announced—J. V. Hightower. *Refiner*, June, 1942, pp. 56, 57. A new system of catalytic cracking, called the Thermofor Catalytic Cracking process, is being offered to refiners for manufacture of high octane gasoline, aromatics (including toluol) and butane-butylene gases used in production of synthetic rubbers and aviation alkylate. The process is of the continuous, countercurrent moving-catalyst-bed type of operation. A 20,000-bbl.-per-day unit is under construction in a Texas refinery and other units are to be built. Some details of the process are discussed and investment cost is listed.

Gulf Coast Refineries Are Abundant Chemical Sources—W. L. Nelson. *Oil and Gas Journal*, June 25, 1942, pp. 165, etc. This discussion of the Gulf Coast Refineries' relation with the embryonic petroleum hydrocarbon-chemical industry reviews the factors culminating in this intimacy and explores aspects of the future expansion potentialities. Butanes are abundant, not only from a bulk of the crude indigeneous to the area, but from numerous natural-gasoline and condensate plants. Exigencies of war, the author points out, have caused the petroleum-chemical technicians to concentrate their current work on the synthetic aviation gasolines, synthetic-rubber components and on raw materials for explosives. A predicate is laid for the vast expansion of hydrocarbon-chemical production.

Catalyst Revived Continuously to Improve War-Product Yield—J. P. O'Donnell. *Oil and Gas Journal*, June 4, 1942, pp. 44-47. By modifying the Houdry catalytic cracking procedure to permit continuous revivification of a portion of the catalyst present in the system, engineers of the Socony-Vacuum Oil Co., Inc., have developed much greater flexibility in the ability of the normal unit to use different charging stocks and produce simultaneously much higher yields of aviation fuels, toluene, and source stocks for synthetic rubber. The revised operation can be applied to ordinary thermal cracking with a relatively small investment to be made in the added equipment.

How to Save Fuel Oil. *Factory Management and Maintenance*, June, 1942, pp. 99-104. A discussion of the ways and means by which this may be accomplished. This report was prepared by the staff of the Socony Vacuum Oil Co.

FISHER

REGULATORS AND ACCESSORIES AVAILABLE FOR PROMPT SHIPMENT

Fisher Governor Company can still supply you with standard types of L.P.G. regulators, regulator assemblies, and accessories. Your orders for this equipment must carry proper certification manually signed in accordance with General Limitations Order No. L-86.

The entire manufacturing facilities of Fisher Governor Company are now devoted to vital war production. However we have on hand a stock of L.P.G. regulators and accessories that were manufactured and assembled before the issuance of Order L-86 and which, we believe, will take care of your limited requirements for the "duration". Furthermore, the shipment of these regulators will in no way interfere with our all-out war production effort, nor will it draw on the supply of critical raw materials and manpower.

We urge that you familiarize yourself with General Limitations Order L-86 (copy sent on request) and cooperate by conforming to the requirements of same when placing your order. In turn we assure you of the best possible service in handling your order.

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Truck Regulations Hold Spotlight

Truck Mileage Rationing Date Extended to Dec. 1 by ODT

Effective date of the Office of Defense Transportation's mileage rationing program for commercial motor vehicles was postponed from Nov. 15 to Dec. 1, it was announced Nov. 12 by the ODT.

Postponement of the ODT program also will give commercial motor vehicle operators who have not yet submitted their applications for Certificates of War Necessity another chance to obtain their Certificates before nation-wide mileage rationing is begun.

After Dec. 1 no commercial motor vehicle subject to General Order ODT No. 21 will be permitted to operate unless it carries a Certificate of War Necessity issued by the ODT.

Several days are required to process the certificates and get them back to the operators. In the event an application is not properly filled out or the wrong application is submitted, even more time will be required.

For these reasons, operators who do not submit their applications immediately will have no assurance that their certificates will be received in time.

Postponement of the Certificates of War Necessity deadline does not change the period in which the tires of all commercial motor vehicles must be inspected, ODT officials emphasized.

These inspections may be made any time after Nov. 15 and must be completed before Jan. 15. Following the initial inspection, the tires of every truck, bus, taxicab or other commercial motor vehicle must be taken in for inspection every 5000 miles or 60 days, whichever is completed first.

After such inspection, no commercial vehicle will be permitted to operate unless the official tire inspector has certified that all possible and necessary repairs, replacements or adjustments to assure maximum conservation of tires have been made.

◆ ◆

LP-Gas Trucks Rationed, Too, Says District Officer ODT

According to the Southern California district of the ODT, butane, propane and diesel fuel will be considered in the same category as gasoline for fuel for trucks and automobiles in the rationing program.

While there has not yet been any definite ruling on this question, and while the OPA has placed no limit upon sales of LP-Gases for automotive purposes, it is stated that owners of vehicles converted to LP-Gas can and will be limited as to mileage by ODT which, in essence, will be the equivalent to a limitation of fuel.

Truck owners are reminded that the rationing objective is not fuel-saving, but rubber economy.

◆ ◆

Automotive Equipment Called "Parts" by ODT Counsel

Automotive equipment, such as hoists, cranes, winches, tanks, bodies, etc., are considered "parts" for the purpose of General Order ODT No. 21, Jack Garrett Scott, general counsel of the Office of Defense Transportation, has stated.

Under the provisions of Order No.

Time for this

NOT THIS!

EVEN though Caloric's plant is working all-out on equipment for our armed forces . . . Caloric research engineers and designers have an eye on the future.

They are looking ahead to the happy day when Caloric can again take up its leadership in producing fine gas ranges for American homes.

They are trying to visualize the appearance—the greater efficiency—of this Caloric "Range of the Future". And they cordially invite Caloric dealers to submit *their* ideas.

Will you put on your Thinking Cap?

CALORIC
GAS RANGES

CALORIC GAS STOVE WORKS
PHILADELPHIA, PA.

21, no person may purchase, or have installed or mounted upon a commercial motor vehicle, any "part" after Dec. 1, 1942, without having a Certificate of War Necessity for the vehicle on which the part is to be installed or mounted.

The Order is equally binding upon the person who "transfers, mounts, installs or delivers" the part and requires him to see that the purchaser of the part presents a valid Certificate for the vehicle for which the part is intended.

◆ ◆

Applications of Truck Owners Must Be Returned to Origin

Only applications for Certificates of War Necessity made on blanks obtained at regional or district offices of the Office of Defense Transportation should be submitted to these offices, ODT officials pointed out Nov. 11.

All other applications must be sent to the ODT's central mailing office at Detroit, Mich., in the self-addressed envelopes provided for the purpose.

It is necessary that applications made on blanks received from the Detroit office be sent to that office, since the application blanks, the blank Certificates and the office records bear the same serial numbers.

◆ ◆

ODT Announces Exemptions To War Certificate Order

Certain types of industrial, construction and farm equipment have been exempted from the Office of Defense Transportation's general order No. 21, which requires commercial motor vehicles to carry certificates of war necessity after November 15. Trailers regularly drawn by passenger cars also have been exempted.

The exemptions are granted by exemption order ODT No. 21-1.

Certificates Not Required For Vehicles Laid Up

Certificates of War Necessity will not be required for vehicles "laid up" indefinitely until they are placed back in operation, the Office of Defense Transportation has explained.

This is because the Certificates of War Necessity, required for all motor vehicles on the road beginning Dec. 1, are issued for the operation of each vehicle, and not for the vehicle itself.

The ODT drew a distinction between vehicles in "dead storage" and those used as stand-by equipment. Those in dead storage, such as a farmer's truck which will not be placed into use until Spring, need not have Certificates now. Stand-by equipment, which is currently available to be pressed into service whenever needed should have Certificates.

◆ ◆

Saving of Operating Mileage Must Be Computed

Mileage saved in an operating unit through the lease, sale or transfer of routes or portions of routes must be taken into consideration by a motor carrier in computing the required mileage reduction for the operating unit under General Order ODT No. 17, Jack Garrett Scott, General Counsel of the Office of Defense Transportation, pointed out in an interpretation Nov. 3.

In a previous interpretation, Mr. Scott ruled that the reverse formula must be followed in computing the required mileage reduction for an operating unit for which additional routes have been acquired.

The number of trucks in an operating unit has no bearing on the mileage reduction required in either case, Mr. Scott ruled.

for a White Christmas

For December 25, *1943* we're wishing for a real old-fashioned white Christmas, where the driven snow no longer runs red with the blood of human sacrifice. We're wishing for a world returned to normal—a world in which every man can live at peace with his fellow men.

We're wishing, yes! But there's more to it than that. We're doing everything possible to make those wishes come true.

The Geo. D. Roper Corporation is devoting its large equipment and skilled personnel 100% to manufacturing implements of destruction—implements which will smash the axis and keep the United States the citadel of freedom.

By the time another Christmas rolls around may we have advanced far along the path to Victory. May we begin to see the dawn of a new world over the horizon.

And for this Christmas—well, let's appreciate those many blessings we enjoy. And let's devote everything we've got toward preserving them.

BUY WAR BONDS

GEO. D. ROPER CORPORATION

GENERAL SALES OFFICE AND PLANT: ROCKFORD, ILLINOIS

Roper Gas Ranges for All Type Gases Including (LP) Liquefied Petroleum Gas

J. E. Watson Made General Manager of Merco Nordstrom

J. E. WATSON

Appointment of James E. Watson as general manager of the Merco Nordstrom Division of Pittsburgh Equitable Meter Co., Pittsburgh, has been announced by Col. W. F. Rockwell, president.

Mr. Watson brings to the Nordstrom organization 30 years of executive experience in technical, production and managerial duties.

He assumed his association with the Nordstrom firm several months ago as assistant to Colonel Rockwell in Pittsburgh and was more recently elevated to the general managership of the Oakland production division.

◆ ◆

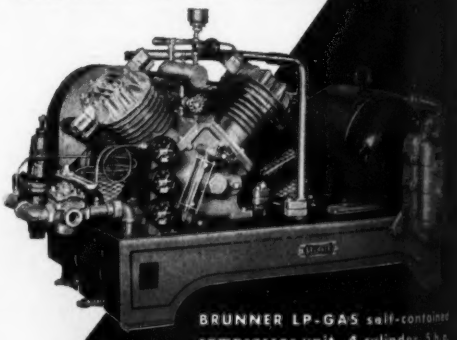
Pamphlet Now Available On Controlled Materials Plan

Official copies of the pamphlet outlining the new "Controlled Materials Plan" are available for free and general distribution by the War Production Board.

Announced Nov. 2 by Chairman Donald M. Nelson, the CMP controls the flow of three basic and critical materials—steel, copper and aluminum—into war production. The plan goes into effect for some groups in the second quarter of 1943 and into full operation by July 1.

W TO GET 500 TO 1000 LBS. M
P-Gas from every tank car unl

Bulk station plants, distributors and industrial plants can recover from 500 to 1000 lbs. more liquid petroleum gas per tank car with the Brunner LP-Gas compressor unit. Not only does this saving in gas enable users to operate at greater profit, but it also helps to conserve LP-Gas for home and industrial use. In addition Brunner units help to conserve man power and hours by speeding up tank car unloading and bottle filling. Brunner Manufacturing Co., Utica, N. Y., U. S. A.



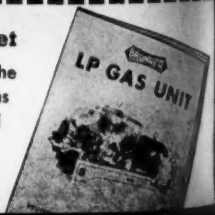
BRUNNER LP-GAS self-contained compressor unit. 4 cylinder, 5 h.p.

BRUNNER

FOR OVER 30 YEARS THE SYMBOL OF QUALITY

Write for FREE Booklet

The new booklet describes the Brunner LP-Gas Unit, contains illustrations, diagrams and other pertinent facts on handling liquid petroleum gas.



Random Shots At The Parade

By W. W. BANKS

As we go to press Christmas is near at hand and all of us here wish all of you there A MERRY CHRISTMAS! We take this occasion to thank our friends everywhere for their business during the past year.

•

Maybe it's just these frosty Texas mornings that have been pepping me up, but I seem to notice a general feeling of optimism among business men. I don't think that it is altogether wishful thinking on my part. Hope not, anyway.

•

Who would have thought a few years ago that Butane would give hot water, cooking fuel, heat and refrigeration to untold thousands in remote, and not so remote places. Commonplace now? Yes, but not commonplace not so long ago.

•

Don't overlook the service angle! Prove your interest in your customers' welfare by inspecting and making sure that their appliances are giving good service. You will find it advantageous and profitable to keep in close contact with your customers.

•

Our new building will be ready soon. It may be just another building to you, but it is a milestone of growth to us and we are proud of the new facilities to serve our customers.

•

Oh, yes, one more thought which happens to be last but not least. Stock up on War Bonds. When you invest in America you can't get overstocked!

DALLAS TANK AND WELDING COMPANY, INC.
201-5 W. COMMERCE ST. DALLAS, TEXAS

VALVES
and
Accessories
for
Gas Burning
Appliances
THE W. J. SCHOENBERGER CO.
CLEVELAND · · · OHIO

For the PERMANENT
REPLACEMENT of
STRATEGIC MATERIALS
SARAN
CHEMICALLY
RESISTANT TUBING
AND FITTINGS BY
HODGMAN
Saran Tubing by Hodgman is a tough thermoplastic specially made to replace strategic materials such as aluminum, stainless steel, nickel, copper, brass, tin and rubber. It is adaptable for use under high working and bursting pressures and is resistant to most chemicals. Its insulating qualities, flexibility and ease of handling make it extremely valuable in installations requiring the transport of oil, gas, air, water and corrosive chemicals . . . Flare type fittings of the same material make it possible to install a complete system with no more tools than a sharp knife and a flaring tool.
*Pat. No. 2160931
Send FOR DATA SHEET AND FREE SAMPLE.
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HODGMAN RUBBER CO.
FRAMINGHAM, MASS.
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SAN FRANCISCO 121 Second St.

Accidental Death Takes Two Prominent LP-Gas Men

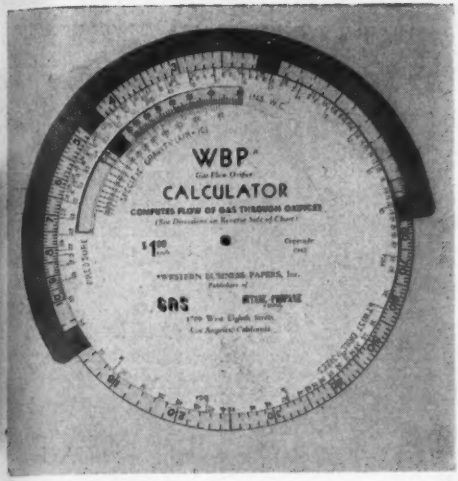
R. L. Edwards, president of the Edwards Gas Appliance Co. and Paul De Laya, associated with the Hydro-Gas Co., both of San Antonio, Texas, were killed in an automobile accident Sept. 25.

R. L. EDWARDS

Both men were riding as passengers in a station wagon, with the driver and one other passenger, en route to a point south of Corpus Christi to go fishing. The reports indicate that they were traveling at a very moderate rate of speed when a tire blew out, causing the car to swerve onto loose gravel and turn over. The top of the station wagon caved in and Mr. Edwards and Mr. De Laya received full impact from the weight of the car, plus several hundred pounds of ice and outboard motors. Mr. De Laya was killed instantly. Mr. Edwards lived for about two hours. The driver of the car also died several days later, but the other passenger is on the road to recovery.

Mr. Edwards has been identified with the LP-Gas industry for many years. He held several offices at various times in the Southern Section of the Liquefied Petroleum Gas Association and was recently elected vice president of the Texas Liquefied Petroleum Gas Association. He was born in Clay County, Texas, in 1885.

In addition to the company bearing his name, he owned the Hydro-Gas Fuel and Equipment Co., San Antonio. Mrs. Edwards will continue to carry on his business activities, with Lacey R. Whitten as manager.



NEW GAS FLOW ORIFICE CALCULATOR

Invaluable to LP-Gas Engineers, Shop Men, Domestic Appliance Service Departments, LP-Gas Appliance Manufacturers, and All Others Who Need to Check or Determine LP-Gas Orifice Sizes.

- **Easy to Use and Carry**
- **No Need for Calculations**
- **No Reference to Tables**
- **Just Set Scales and Read**

Ever had to convert an appliance from manufactured or natural gas to LP-Gas and needed to know what orifice size to install? Ever had to estimate how much gas a burner could handle? Ever had to convert B.t.u. per hr. to cu. ft. per hr., or vice-versa? Ever had to know the B.t.u. input load of an appliance or industrial burner? With the Gas Flow Orifice Calculator you can quickly and accurately work out all these and many other problems.

Checks all factors relative to orifice sizing for gasses from 300 B.t.u. to 3300 B.t.u. at pressures from .5-ins. to 15-ins. water pressure. Determines the flow of orifices from sizes 1 to 75 number drills, from sizes A to Z in letter drills, and from sizes 2/64 to 32/64 in fraction drills.

Priced for quantity purchase to enable you to obtain a sufficient number for everyone in your organization concerned with orifice sizing. Privilege to return within 10 days, for any reason, further assures your satisfaction. We pay postage on orders accompanied by remittance. Add 3% sales tax on California orders; 10% excise tax on Canadian orders.

ORDER TODAY . . .

BUTANE-PROPANE News, Publishers
1709 West Eighth Street, Los Angeles, Calif.

SPECIAL OFFER
25% DISCOUNT ON ALL ORDERS OF 25 OR MORE.

$1.00 EACH

Gentlemen: Please send me.....W.B.P. Gas Flow Orifice Calculators for which I am enclosing my check (or money order) for $.....

Name.....**Position**.....

Company.....

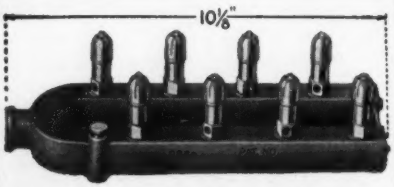
Address.....**City and State**.....

BUTANE and PROPANE
TANK HEADS

A.S.M.E. type
for the manufacturers of
BUTANE & PROPANE TANKS
* * * * STANDARD RADIUS * * * *
* * * * * 80% RADIUS * * * * *
* * * * * ELLIPSOIDAL * * * * *

DIAMETERS UP THROUGH 60"
THICKNESS UP THROUGH 1/2"
Write for Head Catalog

The COMMERCIAL SHEARING & STAMPING COMPANY
YOUNGSTOWN, OHIO.



No. C. L.-80 Barber Burner

BARBER APPLIANCE BURNERS

Barber is now working on war production, but wherever possible and permitted, we are still supplying the regular trade. Barber Units, in many standard or special shapes and sizes, are always correctly designed to fit the individual appliance, and give complete combustion on Butane-Propane or any other gas. Now that efficiency is more vital than ever—submit your burner problems to us. Complete catalog on request.

THE BARBER GAS BURNER CO.
3704 Superior Ave. Cleveland, Ohio

E. L. Mills Elected President Of Acetylene Association

E. L. Mills, vice president of The Bastian-Blessing Co., Chicago, was elected president of the International Acetylene Association at the Association's 42nd annual convention held in Cleveland in October. The convention was held at the same time as the Metals Show.

E. L. MILLS

Mr. Mills has been a member of the board of directors of the Association for a number of years and has served as vice president of the organization for the past two years.

The Association is a technical organization for the promotion of safety in use and practices in connection with acetylene welding. With a worldwide membership it maintains headquarters in New York City. H. F. Reinhard is secretary.

◆ ◆

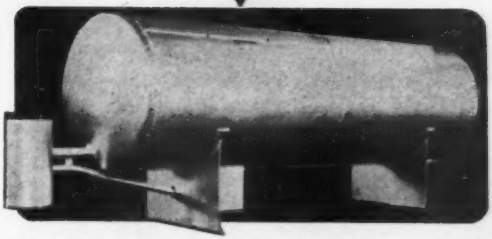
Neil W. Knowland Becomes New Oklahoma Fire Marshall

Neil W. Knowland was appointed state fire marshal of Oklahoma by Governor Leon C. Phillips, effective Nov. 1. In that capacity he also serves as state administrator of the Oklahoma liquefied petroleum gas law.

Mr. Knowland succeeds Carl C. Garner, who resigned as state fire marshal and LP-Gas administrator, to re-enter the school teaching profession in Oklahoma. Mr. Knowland was promoted from assistant state fire marshal to his present position.

Look AHEAD when you buy

Don't let today's confusion cause you to lose sight of the fact that the American Tanks you buy now will be in your service long after the present emergency is over. American Butane and Propane High-Pressure Storage Tanks are designed exclusively for L.P.G. service. They are made of the finest materials, fabricated by experts, and give long, dependable service.



Write, wire or phone us about your present and future storage tank requirements. The assistance of our engineering department is at your service — without obligation.

AMERICAN PIPE & STEEL CORPORATION

Manufacturers and Distributors

ALHAMBRA CALIFORNIA

BUILT FOR ITS JOB!

SMITH BUTANE METER

Smith BU-40 Butane Meter prevents costly shortages in measuring liquefied petroleum gases because this meter is built for that job.

It measures by positive displacement, using the famous Smith Rotary principle which means speed and enduring accuracy. Capacity is 50 g.p.m. . . . working pressure, 250 pounds . . . fast steady flow . . . extremely low head loss . . . built-in strainer . . . guaranteed sustained accuracy (no pistons or valves to wear).

Smith BU-40 Meter is built in models for corrosive and non-corrosive l.p.g.

Optional counter mechanism include horizontal re-set as shown in illustration; 6" or 10" vertical dial; horizontal set-stop counter with or without ticket printer.

Write for complete details.

SMITH METER COMPANY

Subsidiary of A. O. Smith Corporation

Factories at Los Angeles & Milwaukee
Sales offices at
New York, Chicago, Houston, Los Angeles
Local stocks at convenient points
Local agents in all principal cities

Big Oil Pipe Line—Texas to East Coast—Will Speed Ahead

Extension of the world's largest oil pipeline from southern Illinois to the East Coast will begin in December as the result of allocation of the necessary steel by the War Production Board.

The 857-mile, $60,000,000 extension will assure a direct daily pipeline delivery of 300,000 barrels of crude oil or products to the Eastern seaboard. Actual work awaits only the completion of the leg now being laid between Longview, Texas, and Norris City, Ill., and the transfer of construction crews to work sites along the routes to the East Coast.

◆ ◆

"Class C" Manufacturers Limited In Production

In a supplementary order to L-23-c, issued Nov. 9, subparagraph (b) (6) reads as follows:

"(6) From and after December 31, 1942, no Class C manufacturer shall use in any calendar quarter in the production of domestic heating stoves iron and steel in excess of three times 50% of the monthly average of iron and steel used by him in the manufacture of domestic heating stoves during the base period."

◆ ◆

AA-1 Ratings May Be Applied For Repair and Maintenance

Pointing up the importance of keeping the nation's civilian economy in a healthy condition, the Requirements Committee of the War Production Board authorized on Nov. 11 that the top priority rating of AA-1 may be applied to essential repair and maintenance.

Included in the scope of the determination, which becomes a basic policy for the first quarter of 1943, are essential repairs and maintenance for productive facilities, utilities, housing and consumers' durable goods.

The action will make it possible for vital plants and factories, mines and refineries and other industrial facilities to continue effective production of both munitions of war and essential civilian goods. Communication and transportation systems, gas, oil and water lines and other services will be assured of materials to keep them performing their essential functions. Supplies and materials needed for essential maintenance and repair for housing also may be obtained.

◆ ◆

Appointed WPB Advisors

E. T. Scheck, L. J. Mueller Furnace Co., Milwaukee, and M. T. Morthey, Minneapolis-Honeywell Regulator Co., Minneapolis, were recently appointed on the advisory committee of the plumbing and heating transportation industry of the War Production Board.

E. L. Mills, vice president The Bastian-Blessing Co., Chicago, was named for similar service on the oxy-acetylene apparatus manufacturing industry committee.

A. H. Sutton, president of the Mission Water Heater Co., Los Angeles, has been appointed to the plumbing and water heating industry advisory committee of the War Production Board.

◆ ◆

New Manual Is Ready

The fall edition of the United States Government Manual, a 700-page reference book on the creation and organization, functions and activities of the Federal departments and agencies, came off the press recently.

The Manual may be purchased from the Superintendent of Documents, Washington, D. C. Single copies $1.

FOR MORE *SATISFIED* CUSTOMERS

For a More Dependable Source of Supply—A Stable and More Uniform Fuel—A Higher Quality Product—Look into the advantages of Carter Propane and Butane.

Write today for complete information. Address: The Carter Oil Company, Marketing Department, Room 928, National Bank of Tulsa Building, Tulsa, Oklahoma.

DEHYDRATED

Propane and Butane

THE CARTER OIL COMPANY

TULSA, OKLAHOMA

Shipping Points: Seminole, Okla., Stonewall, Okla., St. Elmo, Ill.

WHOLESALE ONLY!

FACTORIES FIND EXTRA VALUE IN *SUSPENDED* GAS HEATERS

AND now in the industrial field, Reznor Unit Heaters have proved themselves outstanding. Yes, their ability to deliver lots of warm air over wide areas is one of the reasons. But, delivering heat from a suspended position, above the working zone, also helps to make Reznor Heaters valuable to production management.

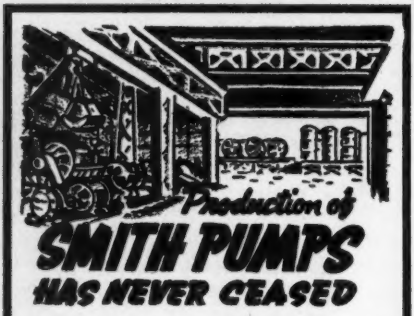
Reznor Unit Heaters may be easily and quickly installed—with lower installation costs. This type heating equipment also uses 89% less vital materials than cast radiation systems. You'll find it worth-while to investigate. Write for catalog U 42.

"THOSE REZNOR HEATERS MOVE A LOT OF WARM AIR"

REZNOR MANUFACTURING CO.

304 James St. Mercer, Penna.

GAS HEATERS EXCLUSIVELY SINCE 1888



Dependability and freedom from service troubles make SMITH Butane-Propane PUMPS a "priority must" with army camps, public utilities, dealers and other users of LP-Gas. Because of this our production has never stopped. Priorities are available for necessary installations.

SMITH *Precision Products* COMPANY
1135 MISSION ST. · SOUTH PASADENA, CALIF.

McNAMAR *Tanks*

- TRUCK TANKS
- TRANSPORTS
- SKID TANKS
- STORAGE TANKS
- UNDERGROUND SYSTEMS

All tanks ASME U-69, inspected by Ocean Accident & Guarantee Corp., Ltd.

McNAMAR
BOILER AND TANK COMPANY
Tulsa, Oklahoma Salem, Illinois

Harry Newcomb Is Elected To Servel Vice Presidency

HARRY NEWCOMB

The election of Harry Newcomb as a vice president of Servel, Inc., Evansville, Ind., has been announced by Louis Ruthenburg, president of the company. Mr. Newcomb will continue as general manager of Servel's electric refrigeration division, a post he has held since 1936. He is also general manager of Servel's new gas water heater division which was established last year. He joined the Servel organization in 1934 as manager of the company's commercial refrigeration division.

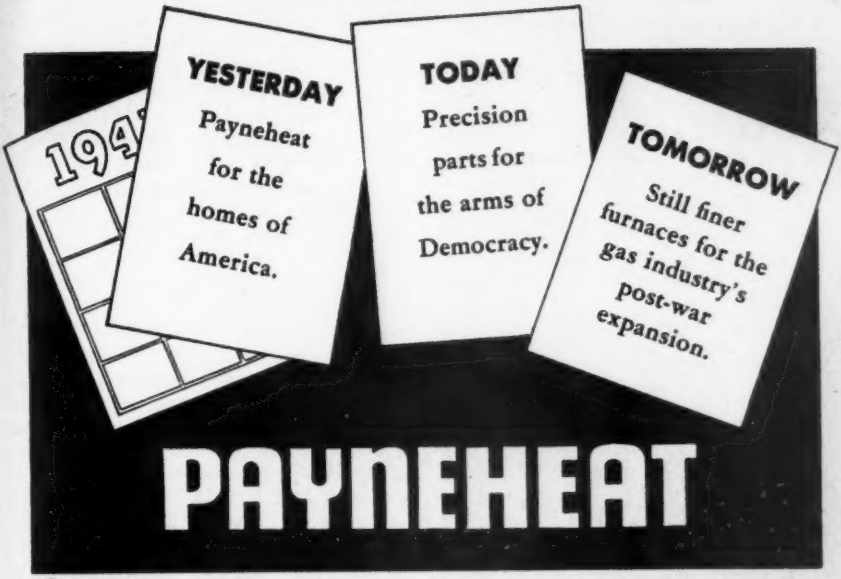
◆ ◆

Brunner Manufacturing Co. Receives Army-Navy "E"

For high achievement in the production of essential war material, the distinctive Army-Navy "E" has been awarded to the Brunner Manufacturing Co., of Utica, N. Y., and its employes, it is announced by G. L. Brunner, president.

For many years past, this company has been engaged in the manufacture of air compressors and condensing units for refrigeration, with markets in this country and abroad.

"Plant conversion to the Nation's war effort has raised our peak of production to a new high level," said Mr. Brunner, "and a great portion of the credit must necessarily go to our men and women workers whose unstinted efforts have helped to bring this much sought-after honor to the Brunner Manufacturing Co."



Payne FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIFORNIA

● *Essential civilian oven users may now purchase new Blodgett Ovens under Order L-182.*

oven-baked foods get nod on national nutrition program

HERE ARE FACTS YOUR CUSTOMERS SHOULD KNOW:

Modern nutritional menus, keyed to war-time demands, show a strong predominance of baked and roasted dishes. For domestic or mass-feeding, food—entree, vegetable and dessert, is adjudged better when oven-cooked.

These menus, recommended by the national program, are high in nutritional value—and prevent waste of vitamin content, food volume and fuel.

THE G. S. BLODGETT CO., INC.

53 Maple Street Burlington, Vermont

Oklahoma Dealers Plan Cooperation

OKLAHOMA liquefied petroleum gas dealers and distributors, at a meeting in Oklahoma City, Nov. 5, formed a temporary organization to secure full cooperation with Federal war agencies in reduction of delivery truck mileage, conservation of tires and elimination, so far as possible, of duplications by companies in serving LP-Gas systems.

Left to Right: C. F. Hanley, Truck Rationing Board; Joe M. Griffin, rationing division, OPA, and James Archer, chief inspector for Oklahoma.

A board of directors was selected to contact by mail each LP-Gas dealer and distributor in the state and secure detailed information for consideration by the board and final presentation to the war agencies. The board was instructed to work out a tentative plan from the data received and then call in representatives of the Federal boards which might exercise some jurisdiction over the LP-Gas industry in connection with prosecution of the war.

The board selected to make the survey and work out a plan for full cooperation is: J. L. Grigsby, American Butane and Propane Gas Co., Oklahoma City; Dewey Wood, Dewey Wood Butane Co., Ardmore; T. A. Dyer, Dyer Butane Gas Co., Lawton; George Hagin, Hagin Butane Co., Cordell; Paul C. Tooks, White Way Butane Co., Oklahoma City; Harry J. Porter, Northeastern Oklahoma Liquefied Gas Co., Tulsa; R. L. Epple, R. L. Epple Co., Tecumseh, and Joe E. Naylor, Okeene Oil Co., Okeene.

J. L. Grigsby was elected chairman of the meeting, and O. D. Hall, Oklahoma City, secretary. H. J. Porter was named secretary for the board of directors. The organization action followed statements from Mr. Grigsby and some dealers from the floor that unless LP-Gas people in Oklahoma adopted a unified conservation plan to eliminate duplications of service and unnecessary use of delivery equipment, some Federal war board would be likely to take such action for the duration of the war.

Discussion developed that while some dealers differ as to methods, all agree that unrestricted competition and free movement of equipment in territory served by several delivery trucks must be eliminated, so far as this can be done without depriving any dealer of business which he has developed and to which he is entitled.

The meeting was called by State Fire Marshal Neil W. Knowland, in his capacity as state liquefied petroleum gas administrator, and by James Archer, his chief inspector. Mr. Archer presided over the morning session which was addressed by W. W. Warren, district director for the Office of Defense Transportation; C. F. Hanley, of the Truck Rationing Board, and Joe M. Griffin of the rationing division, Office of Price Administration, all of Oklahoma City.

Mr. Warren advised all operators of LP-Gas trucks to file applications for certificates of war necessity before December 1. He stated that such

For Safety
and Economy

ETHYL MERCAPTAN

—Purified—

The ACCEPTED
standard
odorant
for liquefied
petroleum
gases.

MALLINCKRODT
CHEMICAL WORKS

ST. LOUIS NEW YORK

Zero-Flex remains plastic from 212° F to 55° F below zero. A patented compound of dual purposes: (1) permanently seals moisture out of all types of joints (2) makes an ideal thread lube giving a perfect seal without hardening —yet permits joints to be taken apart easily. Unaffected by oil, grease, alcohol, glycerine or brine.

ORDER FROM KEROTEST

KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.

UNCLE SAM IS "COOKIN' WITH GAS"

This isn't just a wise crack in these momentous days when Uncle Sam challenges the enemy on a hundred fronts—on land, on sea and in the air.

And Uncle Sam and his great war plants, military, aviation and naval units know the value of Sinclair LP-Gas for this great task.

For industrial heat and motive power; For heat treating, case hardening and forging vital metal parts; For fueling battle planes and battleships; for tanks and trucks; and for domestic needs in thousands of defense workers' homes, there are no better products than Sinclair Butane and Propane.

Protect your fuel requirements by contracting with

SINCLAIR PRAIRIE OIL COMPANY

Liquefied Petroleum Gas Division
Sinclair Bldg. Tulsa, Okla.

SPRAGUE METERS

for

PROPANE - BUTANE SERVICE

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Write for Particulars

SPRAGUE METER COMPANY

Bridgeport, Conn.
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San Francisco, Calif.

"KEEP 'EM FRYING"
USE PITCO
Frialators
REG. U.S. PAT. OFFICE
SAVE FAT . . . GAS . . . SPACE

Deep-Fat Frying at Its Best

★ Customers can serve a wider variety of fried foods.
★ Left-overs or by-products quickly converted into daily specials.
★ Increase in customer business means increase in the gas load.
★ Actual saving in fat alone more than pays total cost of gas required to operate them.

Send for 1942 Illustrated Catalog.

J. C. PITMAN & SONS,
INCORPORATED
711-719 Broad St. Lynn, Mass.

certificates should be attached to the trucks and must be presented to secure gasoline in connection with the mileage rationing program

◆ ◆

Service Handbook Prepared by Roper Corp.

The Geo. D. Roper Corp., Rockford, Ill., has prepared a well-illustrated handbook for Roper gas range servicemen to simplify their task, especially in wartime. It is designed to assist the servicemen "on the firing line" in serving the customers and properly maintaining their gas appliances for the duration.

The principal purpose of this manual is to describe by pictures and words the best procedure for repairing operating features of ranges, thus assuring them of lasting at least until the war's end.

Among other subjects covered in the booklet are care and use of the gas range; principles of gas combustion; top burners; oven burners and broiling burners; gas valves and orifices; orifice hoods; oven thermostats; top burner lighters; safety pilots for oven and broiling burners; and kitchen heater burners.

The manual contains 62 pages and is elaborately illustrated with drawings detailing all range parts.

◆ ◆

Stove Thermostats Banned Beginning Christmas Day

By the terms of an amendment (No. 3) to Limitation Order L-23-c (which controls the manufacture of household cooking stoves), thermostats are added to the list of accessories which may not be attached to stoves.

The order, issued Oct. 26 by the WPB, becomes effective Dec. 25. The objective is to effect a further saving of critical materials.

L.C. RONEY, INC.

meets the demands of the nation. Our plant has gone to war for the duration — but when peace comes, L. C. RONEY products for the LP-Gas industry will meet the demands of dealers everywhere. In the meantime—our stock of LP-Gas equipment is still complete.

L.C. RONEY INC.
1940-44 W. 59th ST. • LOS ANGELES, CALIF.

Order These Famous L. P. Gas Products From Us . . . .

RECO Lip

The BASTIAN-BLESSING

THE DAYTON-DOWD CO.

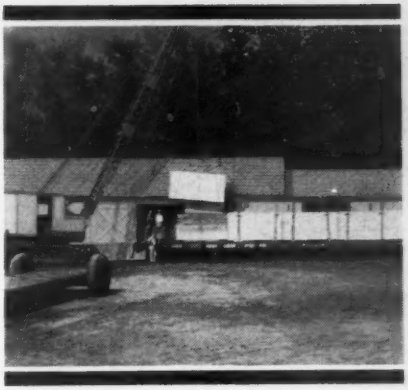
Hackney
BUTANE PROPANE CYLINDERS

L.C. RONEY INC.

The IMPERIAL BRASS MFG. CO.

GAS EQUIPMENT CO., INC.
2620 South Ervay Street, Dallas, Texas

GAS EQUIPMENT SUPPLY CO.



There Goes Your Pump To Help Our FIGHTING YANKS

Carload after carload of Viking Rotary Pumps are being shipped packed for export and ready for service with our armed forces in every part of the world.

Regular customers who are unable to get pumps at all . . . others who get them only after considerable delay . . . deserve a word of thanks for their patriotism and patience.

We're all doing the best we can. And there's one thing we're all agreed on. Equipment for our Fighting Yanks COMES FIRST . . . to speed Victory . . . so that our boys can get back home.

★ ★ ★

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

Ickes, Davies and Eastman Address API Annual Meeting

Petroleum Coordinator Harold L. Ickes, Deputy Coordinator Ralph K. Davies and Defense Transportation Director Joseph B. Eastman were among the speakers at the 23rd Annual Meeting of the American Petroleum Institute held at the Palmer House, Chicago, Nov. 9-12. Wm. R. Boyd presided.

Nine group sessions were held at the meeting, to discuss the protection of petroleum facilities, war-time automotive transportation, pipe line transportation, synthetic rubber raw materials from petroleum and the refinery conversion program, hydrocarbon properties and research, and government problems in controlling drilling and production. Only about 40 committee meetings, whose work is contributing directly to the war effort, were held.

◆ ◆

Alfred Francis, Roper Corp., Dies in Lubbock, Texas

Alfred Francis, a representative of the Geo. D. Roper Corp. for the last three years, died suddenly this month from a heart attack in Lubbock, Texas. He had been covering western Texas and New Mexico territories.

Mr. Francis had recently been granted a leave of absence for the duration of the war.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933.

Of BUTANE-PROPANE *News*, published monthly at Los Angeles, California, for October 1, 1942.

State of California, County of Los Angeles —ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Jay Jenkins, who, having been duly sworn according to law, deposes and says that he is the publisher of the BUTANE-PROPANE *News*, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Jay Jenkins, 1709 W. 8th St., Los Angeles, Calif. Editor, Arthur Rohman, 1709 W. 8th St., Los Angeles, Calif. Managing Editor, Lynn C. Denny, 1709 W. 8th St., Los Angeles, Calif.

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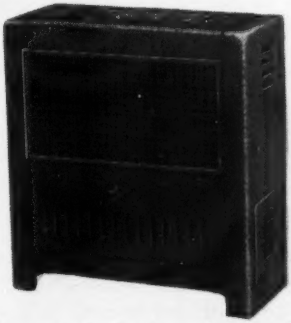

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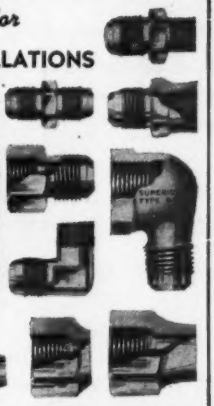

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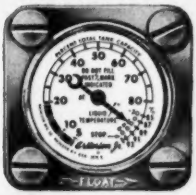

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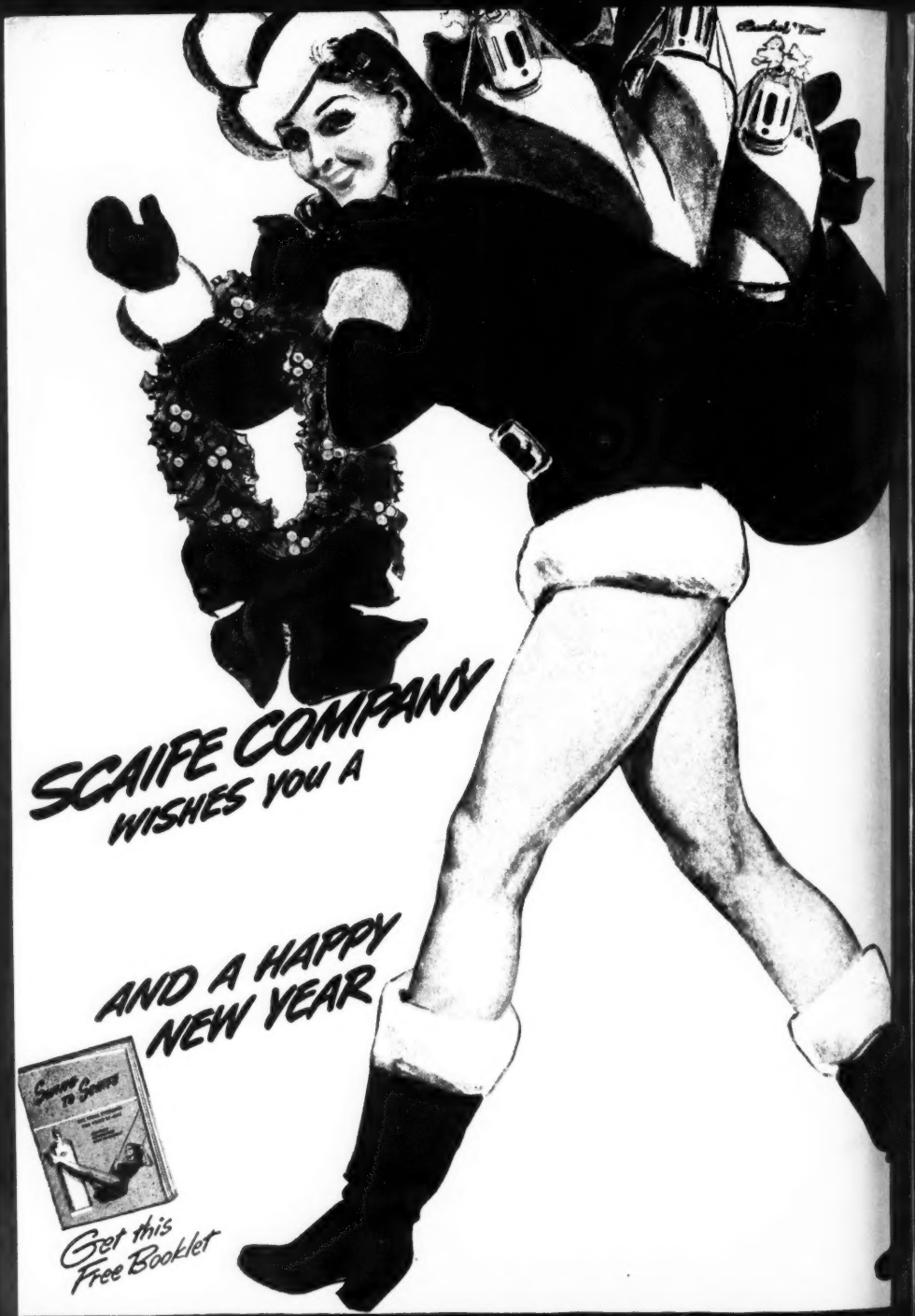

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